

ANNUAL REPORT

OF THE

THE UNIVERSITY

Department of Agriculture

OF THE

NORTH-WEST TERRITORIES

1904

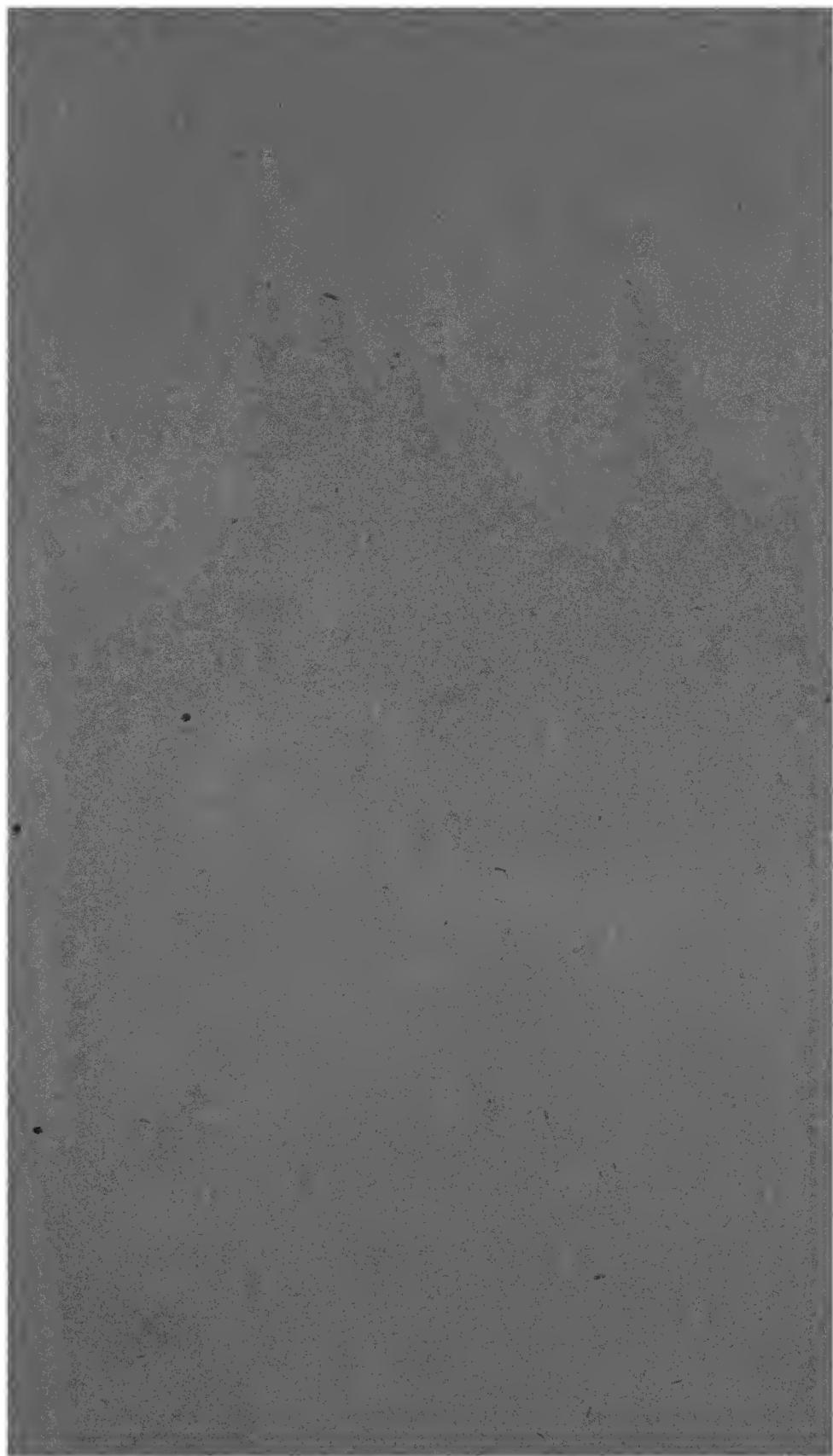
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REGINA:

JOHN A. REID, GOVERNMENT PRINTER

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DEPARTMENT OF AGRICULTURE,

REGINA, *March 1, 1905.*

To His Honour,

AMEDÉE EMMANUEL FORGET,

Lieutenant Governor of the North-West Territories.

SIR,—

I have the honour to submit herewith the Annual Report of the Department of Agriculture for the year 1904.

I have the honour to be, Sir,

Your obedient servant,

W. ELLIOTT,

Commissioner of Agriculture.

ILLUSTRATIONS.

(See end of Volume.)

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REPORT
OF THE
DEPUTY COMMISSIONER

DEPARTMENT OF AGRICULTURE,

REGINA, March 1, 1905.

W. ELLIOTT, Esq., M.E.C.,

Commissioner of Agriculture.

SIR,—I have the honour to submit herewith the seventh annual Report of the Department of Agriculture for the North-West Territories, covering the work of the various branches of the Department during the year ended December 31, 1904.

For convenience the report is divided into the following sections:

- I. Crops.
- II. Live Stock.
- III. Agricultural Experiments.
- IV. Agricultural Educational Work.
- V. General Notes on Agriculture.
- VI. Transit and Markets.
- VII. Territorial Industries.
- VIII. Colonisation.
- IX. Miscellaneous Services.
- X. Public Health.
- XI. Office Work and Organisation.
- XII. Appendices.

I.—CROPS.

WEATHER CONDITIONS AND STATISTICS.

The Department has continued during the year the local supervision of the Voluntary Meteorological Service in the Territories under the direction of the Dominion Meteorological Office at Toronto. Some difficulty was experienced in maintaining the work at several stations owing to resignations and illnesses of observers, which resulted in the temporary closing of a few stations. As soon as competent observers can be secured at these points work will be resumed. The following stations were closed during the year: Abernethy, Alameda, Cardston, Chaplin, Coutts, Duck Lake, Dundurn, High River, Insinger and Whitewood; and the following new stations were established: Melfort, observer, A. E. Wild; Weyburn, observer, R. M. Mitchell, M.D.; Strassburg, observer, A. A. Downey; Last Mountain, observer, L. S. Irvine. There were 40 stations in active operation during the year and these furnished 374 reports.

During the year Mr. J. Cuthill, observer at the Calgary Experimental Farm, was replaced by Mr. P. Turner Bone; and Mr. R. Hewitt, observer at Cannington Manor, was replaced by Mr. John Cusack.

GENERAL REMARKS.

JANUARY.—The weather was comparatively mild from the 1st to the 13th and the temperature of the month was considerably in excess of the average. Throughout the month there was much bright sunshine and the precipitation, which varied considerably at the different stations, occurred chiefly during the second half. Some severe gales were recorded, when the snow was much drifted, but they were of short duration. Much of the snow which fell was melted, and in some localities the ground was bare; sleighing, however, was possible in most districts.

FEBRUARY.—The weather was exceedingly cold, and in most localities there was much snow; nevertheless there were many fine days and bright sunshine generally exceeded the average. In northern districts temperatures well below zero occurred every night and frequently during the day at most stations, whilst in southern districts, and more especially in Alberta, they were much less frequent. Temperatures above the freezing point were recorded in Alberta on or about the 1st, 17th to 20th, and 27th to 29th. In Northern Alberta, Saskatchewan and Eastern Assiniboia the depth of snow on the 29th generally exceeded 20 inches, and the thickness of ice on rivers and lakes on the same date throughout the Territories was about 30 inches.

MARCH.—The weather was exceedingly cold, the precipitation was unusually heavy, and the proportion of bright sunshine was below the average. During the first week and last ten days comparatively fine weather prevailed. On or about the 27th there was a marked rise in the temperature, and it continued mild to the 31st, much of the snow on the ground being melted and disappearing almost completely in western districts. The winds were mostly south-east to south-west and were quite strong, and the snow which fell was much drifted.

APRIL.—The weather though mostly mild in Alberta was comparatively cool in Assiniboia and Saskatchewan. With a few local exceptions the precipitation was unusually light and at some stations not any was recorded. During the first ten days there was much bright sunshine with low temperatures at night, after which the sky was frequently overcast and higher temperatures generally prevailed. By the 15th the snow, with the exception of a little in the woods, had disappeared, and by the end of the month vegetation had made good progress.

MAY.—The weather was somewhat dull, cool and dry, excepting in a few districts, more especially in the northern portion, where, on the contrary, it was somewhat wet. Frequent and sudden changes of temperature were a feature of the weather of May, and, although frequently warm during the day, the nights were cool and frosts occurred in many places. The precipitation and date of occurrence varied with the district, some stations recording many light falls, whilst in others they were few but heavy. The condition of vegetation was abnormally good.

JUNE.—The weather was somewhat cooler and finer than usual, and, although there were exceedingly heavy rains at some places, the

precipitation was below the average in most districts. Cool nights and warm days were features of the weather of the month, the range occasionally exceeding 40° at some places. After the 12th there was much fine bright weather and little rain was recorded, excepting showers on or about the 25th and 27th, which occurred at some places. Reports regarding the condition of vegetation were exceedingly favourable.

JULY.—Although the day temperatures were exceedingly high on many days the nights were cool; and, although it was generally cooler in the north and warmer in the south than usual, the departures from the normal were not important. In most localities there was much bright sunshine, more especially from the 1st to 12th and 18th to 28th. Showers were somewhat frequent and in the eastern portion of the Territories there was a good supply of rain, whilst in more western districts the precipitation was comparatively light. Vegetation made good progress and growth was abnormal.

AUGUST.—The weather was generally cool and dry, both the temperature and rainfall, with some quite local exceptions, being below the average. Clouded skies were frequent, more especially about the 1st, 2nd, 8th to 11th, 16th to 23rd and last three days of the month, light rain also occurring frequently during these cloudy periods. These frequent showers were probably more beneficial than heavy rain and the condition of vegetation was excellent on the 30th.

SEPTEMBER.—The weather conditions varied with the district, much rain occurring in some places, whilst in others it was below the average; and although the temperature did not depart much from the normal, excepting locally, the same inequalities were noticeable. Up to the 9th the nights were cool, but it was comparatively warm during the day. After this date, however, there was a marked fall in the temperature, and although there were some warm days, more especially after the 24th, frosts were quite frequent at night up to the end of the month. From the 3rd to 11th and last six days of the month there was much bright weather, but the total sunshine of the month was somewhat below the average. The leaves of the trees were changing colour on the 7th.

OCTOBER.—The weather was unusually mild and in most districts the precipitation was light; in some localities, however, there was much rain and some snow. During the first week exceedingly dull weather prevailed accompanied by occasional rain or snow, after which there was much bright sunshine, and with the exception of rain at some places about the 17th and 21st it was generally fair to the end of the month. Temperatures well below the freezing point were frequent, nevertheless 60° was often recorded during the day at stations in Alberta and between 50° and 60° in other portions of the Territories.

NOVEMBER.—The weather was exceedingly mild and dry up to about the 23rd, when a marked drop in the temperature occurred, and it then remained cold and wintry to the end of the month. There was much bright sunshine, and, with the exception of some light showers at a few places on or about the 5th, precipitation was not recorded until the 22nd and five succeeding days when occasional showers of snow were reported.

DECEMBER.—The weather was somewhat mild and the precipitation in the northern and eastern portions was excessive. Up to about the 20th the temperature was generally between 30° and 40° in Alberta and

rather lower elsewhere. After this date much lower temperatures prevailed until the 28th when there was a quick return to even milder conditions than at an earlier date. During the first and last week bright sunshine was almost continuous and throughout the greater portion of the month the weather was fair. On the 31st there was a light covering of snow and the thickness of the ice on rivers was about ten inches.

DISTRICT REPORTS.

JANUARY—*Calgary*—January weather has been for the most part fine and agreeable, with very little snow, a great deal of sunshine and very little zero weather. Some severe gales prevailed; however they were of short duration and did not interfere with the general interests of the country. Live stock running on the ranges are in splendid condition, although some complaints are made of the scarcity of moisture, the snowfall being below the average. Spring larks appeared for a time during the month. Building operations have continued in full swing with but few interruptions. *Medicine Hat*—Very fine weather during January, no very low temperature or storms, snowfall light and very favourable for cattle ranges. *Prince Albert*—Warm weather early part of month, cleared nearly all snow from roads which are very bad, making lumber operations difficult and retarding grain deliveries. *Qu'Appelle*—Recent cold weather prevented grain delivery but is now coming in freely; about 80 per cent. of crop marketed.

FEBRUARY—The month was decidedly cold but for the most part fine with a few heavy storms. High winds were, however, fairly general in the Territories on several days, notably the 4th and 16th. In the former case the wind was from northeast accompanied by a fairly heavy snowfall in most districts, and in the latter instance south-east—almost a blizzard—and there was a considerable snowfall in Saskatchewan and Eastern Assiniboia. The lowest temperatures were in very few instances below 30 degrees, and 46 degrees was only once recorded in Saskatchewan. *Calgary*—February weather although cold has not been unpleasant or disturbing to any great extent to ordinary business pursuits, although the mean temperature for the month was nearly two degrees below zero. The days were for the most part bright and not more than one inch of snow fell during the month. For twenty-two nights the mercury dropped below zero, and during fourteen days it never rose above zero; on two days there was a difference of nearly 50 degrees between the maximum and minimum temperatures rising to 40 degrees during day and sinking to 10 degrees during night. Owing to absence of storms, range cattle are reported as doing well, comparatively little fodder having as yet been used. *Medicine Hat*—Weather continued cold throughout the whole month, but fortunately free from wind storms; no losses reported from stock ranges. *Edmonton*—Steady cold weather and heavy snowfalls have been the conditions this month; snow lies very loose; sleighing good. The freighting of goods to Athabasca Landing and Peace River with supplies for northern districts has furnished employment for many teams. Lumbering is actively being carried on and the cut will be much greater than usual; stock in good order and hay plentiful; grain deliveries smaller than usual as it is being largely fed to hogs and stock; furs, especially muskrats, numerous; native population generally well off.

MARCH—*Calgary*—The month has been cold throughout, but with little snow and much fair weather; south-east winds have predominated, but there has been no storm of consequence during March or, for that matter, throughout the whole winter. In consequence cattle are looking well and very little loss, if any, is anticipated, even if storms should arise during April, as feed is plentiful, little having been used to date. There has only been one day's sleighing during the winter and the snow is all gone except in patches. *Edmonton*—Cold until the 27th, then snow sank rapidly, roads getting high; eagle seen on the 29th; stock in good order; feed plentiful; if weather favours, farmers propose to sow a large area. *Battleford*—This has been the worst month of March for years past. There was fully three feet of snow on the ground before a thaw set in and traffic was seriously impeded by bad roads. *Medicine Hat*—During the whole month cold winds and heavy snowfalls; some losses reported from the ranges. *Qu'Appelle*—Spring has opened up and snow is decrasing rapidly. During the evening and night of the 24th a heavy snowstorm and gale prevailed in Assiniboia.

APRIL.—The month has been quite favourable and not backward except perhaps in Eastern Assiniboia, where there was a period of decidedly cold weather after the 14th. Reports from Alberta and Western Assiniboia indicate the season more forward than anywhere else in Canada exclusive of British Columbia. *Calgary*—This has been a most delightful month, warm with lots of sunshine; scarcely any precipitation and no heavy winds; the thermometer reached 76 degrees one day; seeding began on the 2nd and is nearly finished; wild geese were observed flying northward on the 5th; robins and other spring birds appeared on the 12th, and the ice cleared out of the Bow river on the 26th; cattle and horses have come through the winter well and without loss; the grass is quite green and the early-sown grain is coming up; fall wheat has wintered well. *Edmonton*—Month came in warm and remained so throughout; robins on 4th; rooks on 7th; snow all gone by 9th; river cleared of ice by 14th; seeding began by 19th and wheat all sown by end of month; temperature rose to 78 on 28th; weather for month could scarcely have been improved upon. *Medicine Hat*—Fine and warm weather during month with some light rains towards the end; ploughing and seeding now general. *Prince Albert*—North Saskatchewan open on 21st; trees budding and vegetation progressing rapidly; river very high. *Battleford*—Rivers and creeks at flood state all through this district; no growth yet. *Qu'Appelle*—Spring birds here; buds bursting; seeding progressing fast; plenty of feed on prairie; cattle all wintered well.

MAY.—*Calgary*—Although there were a number of warm days in this month there were likewise many cold nights, which have materially lowered the average temperature for the month, consequently vegetation was much delayed until the last week, when a good start was made. The grass is pretty well forward and grain is now making good progress, but garden truck is behind; trees did not fully leaf out until about the 24th. An apple tree in the immediate vicinity is well covered with bloom, as are also currant and gooseberry bushes. Stock is rapidly putting on flesh and the increase has been good. Rivers are normal and as yet there is no sign of much high water this year. *Edmonton*—Weather has been moderate: frost on three nights; no snow; precipitation light; farming work has gone on without hindrance; seeding over; wheat

looks well; grass well grown. Everything looks favourable for good crop. *Battleford*—Everything is growing very rapidly, the weather having been very favourable throughout the month. *Prince Albert*—Crops doing extra well, slight frosts causing no damage. *Medicine Hat*—Weather has been mild, with light rainfall and very favourable for both grain and grass crops. *Qu'Appelle*—Growth rapid; crops, grass and trees never looked better; a splendid harvest anticipated.

JUNE.—With a temperature not far from average and a rainfall in excess of average in the more northern portions, and not greatly deficient in the southern districts, June has been quite a favourable month and the crop outlook is most promising everywhere. *Edmonton*—The rainfall has been heavy and thunderstorms frequent; no frost has occurred and warm weather at the close of the month has brought on grain and vegetables wonderfully. There is every prospect of a heavy crop, and in spite of rain the trails are in good order. *Calgary*—The weather has been rather dry, otherwise favourable and fairly warm. The prevalence of cold nights during the first part of the month, and heavy frost at least on one night, greatly retarded vegetation and spring grain and vegetables are ten days behind. Fall wheat is looking well and beginning to head out. The grass crop is excellent, and consequently stock of all kinds is looking extremely well. Cattle will be ready for export from three to four weeks earlier than last year. *Medicine Hat*—The weather has been warm and dry during this month. The rainfall has been light with much wind; crops and grass lands now require rain. *Battleford*—Heavy rainfall and frequent hailstorms were the features of this month. This whole district seems to have been visited by the hail which, in some instances, was heavy enough to smash windows and would have seriously injured the crops if it had been later in the season; grass abundant; stock fattening up fast. The grain crop could not look any better. *Prince Albert*—Weather favourable for crops, which are exceptionally well advanced: river high. *Qu'Appelle*—Nearly all crops seasonably advanced; rain is required in some districts; prospects good.

JULY.—*Calgary*—July weather was for the most part hot and dry with some days of hot south-east winds, which dried up the country in some places, and, although favourable for stock in ripening the grass, caused in some localities, particularly to the south, damage to the crops. Stock is very fat and well matured so that export cattle were ready at least a month earlier than the last two seasons. Grain for the most part is good and in some places barley and fall wheat harvesting has commenced. The latter is reported as a very good crop. Roots and vegetables are also reported good. The rain of the last week has been very timely and did much good. Haying is in full swing and a good crop is reported. *Edmonton*—The weather this month has been all that could be desired—warm and a sufficiency of sunshine and moisture. On the 22nd 94 degrees was registered, a record for this station. Crops which were backward at the beginning of the month have come on wonderfully and some early barley has been cut. There is every assurance of a good crop of all roots. Grain and hay straw is short for Alberta, but heads are extra large and well filled. Roads in better condition than for years past. *Battleford*—July was too dry throughout this district and the crops have suffered somewhat, but were saved by the rains of the 15th and 29th. On the other hand, the dry weather was favourable for ranchers and hay-making. *Prince Albert*—Crops

are in splendid condition, heavy rains just in time. *Medicine Hat*—High temperatures, dry winds and light rain general during the month, crops suffering to some extent. Range cattle in splendid condition.

AUGUST—The rainfall was generally a little below the average. Temperature was much below the average in nearly all localities. A few light local frosts were recorded, apparently doing little or no damage. The crop outlook appears to be very encouraging, although in some districts, especially in the northern, the harvest is very late. *Edmonton*—The month of August has been cooler than usual, but crops have come on well; no frost recorded at this station; rainfall light, but very heavy dew every night. Harvest now in full swing; grain splendid sample and yield good. Roots and all vegetables extra good crop. A large quantity of hay put up in fine condition. *Prince Albert*—Light frost reported in some localities but no damage; harvest will be general in a few days. *Battleford*—Sunshine and heat is much needed here for the ripening of grain, a considerable portion of which is late. Hail has again done some damage. *Medicine Hat*—Warm weather with light showers during this month; hay and grain harvest now general; crop reports fairly satisfactory.

SEPTEMBER—The weather has been generally favourable for harvesting. The first damaging frosts occurred between the 11th and 13th, at which date most of the grain crop had been cut, and the following reports from observers indicate most satisfactory conditions. *Edmonton*—September has been a month of fair weather. On the 13th there were nine degrees of frost; on the 12th one degree, and the rest of the month was clear of frost; grain is mostly cut, frost only catching some late oats. Threshing has begun; grain is a fine sample, and the yield is good. Roots of all kinds will be a heavy crop. *Calgary*—September has been exceptionally warm and bright, and frost occurred but four times. The grain has all been cut and partly threshed; root crops are above the average. *Battleford*—September weather has been favourable for the gathering of crops; hay is very plentiful and of good quality. *Medicine Hat*—Fine open weather during this month; light rainfall with occasional cold winds; crops gathered in good condition; stock shipments continue light. *Qu'Appelle*—Threshing commenced; some damage by frost.

OCTOBER—Frosts were of frequent occurrence during the month, the heaviest occurring on the 5th, 7th, 8th, 23rd and 24th, when from 10 degrees to 14 degrees were recorded. On and about the 11th temperatures of 70 degrees were general in Assiniboia and Saskatchewan, and again about the 24th, in Alberta and Assiniboia maximum temperatures of over 70 degrees were recorded. Light snow fell in northern Alberta on the 3rd and in the southern portion on the 4th. *Calgary*—The finest, brightest and warmest October we have had for years. Two light snowfalls occurred during the month. All grain has been harvested and the crop was above the average. The temperature was 75 degrees on the 26th. *Edmonton*—Rain on three days; light snow on 3rd; during the rest of the month the weather was beautiful. The farmers have profited by it to do more fall ploughing than usual; threshing is in full swing and grain yielding fairly well and fine sample; rivers very low; trails were never much drier; cattle in good order and plenty of hay put up. *Medicine Hat*—Continued fine weather through October; clear warm days and nights with slight frosts prevailing; fall work well advanced

stock shipments improving. *Qu'Appelle*—Threshing almost finished with yield better than was expected. Prospects are that grain will be marketed much earlier than last year. *Prince Albert*—Weather and roads exceptionally fine; river navigation closed 10th on account of low water.

NOVEMBER—An unusually fine, mild month with very meagre precipitation, and up to the 24th very little frost was recorded; afterwards however more wintry conditions set in with some light snowfalls, the weather becoming gradually colder, the temperature decreasing to zero and below by the 29th and 30th. *Edmonton*—November has been a warm month with no rainfall; ground did not freeze and ploughing was possible till the latter portion, a larger area than usual has been ploughed. Threshing about over, yield good and quality in wheat and oats fair, barley good; river closed on 28th. *Calgary*—Fine weather continued during November, chinook winds being prevalent. Building operations are being carried on as briskly as in midsummer. Only one light snowfall occurred. *Medicine Hat*—The weather throughout November was exceptionally fine and open, southerly winds prevailing; slight frost on a few nights only. *Qu'Appelle*—About half this year's crop marketed; very little snow.

DECEMBER.—*Edmonton*—December has been a month of fine weather, barely snow enough for sleighing, only nine days of zero temperature; one storm of wind on the 17th with velocity of 38 miles; stock in good order and plenty of feed. *Calgary*—December has been a very fine month, chinook winds frequent, especially at night; the mercury dropped to 22 below on Christmas night. *Prince Albert*—Lack of snow in early part of month retarded lumbering, but roads are now fairly good.

HAILSTORMS.

Considerably less damage occurred from this cause than in 1903. A storm of some severity passed over the south-eastern portion of Assiniboia from Gainsborough to Carievale on July 13 and another visited the same district on August 18. Hail also fell in most parts of Eastern Assiniboia, doing damage in some localities. The Moose Jaw district, where such heavy losses were sustained in 1903, was in 1904 practically immune. In Alberta the worst storms occurred in the district north of Edmonton on June 30 and August 17. Some damage to crops was reported from points between Innisfail and Strathcona, but in many cases it was slight in character.

HAIL INSURANCE.

The administration of The Hail Insurance Ordinance is in the hands of the Treasury Department, which has been kind enough to furnish for this report the figures given below:

Comparative Statement of Operation of The Hail Insurance Ordinance of the North-West Territories.

	1902	1903	1904
No. of contracts	675	1,643	1,741
No. of claims for indemnity	85	127	159

	ACREAGE INSURED.	1902	1903	1904
Wheat.....	40,645	57,683	97,741	
Oats.....	15,546	52,904	49,491	
Barley.....	1,941	11,964	11,576	
Flax.....	2,520	3,049	2,018	
Speltz.....		201	155	
Totals	60,653	125,801	160,983	
Acreage of above wholly covered	56,897	109,578	147,232	
Acreage of above partially covered	3,756	16,223	13,751	
Fees paid into Treasury (at rate of 10 cents per acre wholly covered in 1902 and 15 cents in 1903 and 1904).....	\$5,881.13	\$17,635.14	\$23,158.23	
Expenses :				
Clerical services.....	1,763.50	1,147.25	1,084.91	
Postage and telegrams.....	118.02	149.60	139.68	
Books, stationery, etc.	324.15	313.85	187.32	
Examiners' fees.....	379.04	910.36	1,057.22	
Balance of expenses of 1903 paid in 1904....	166.99		90.00	
Outside estimate of expenses of 1904 to be paid in 1905		325.00	600.00	
Indemnity.....	12,862.38	16,544.12	10,450.61	
Totals	\$15,604.08	\$19,390.18	\$13,609.74	

	Acreage under crop.	Acreage insured.	Percentage of total acreage insured.
1902	989,637	60,353	6.1
1903	1,383,434	125,801	9.9
1904	1,594,096	160,983	9.90

I.—ANNUAL Precipitation from 1895 to 1904, inclusive,

STATION	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	Years observed	Avg'e inches
Battleford	12.01	12.93	16.53	14.24	18.42	20.41	16.57	13.49	6.06	16.60	13	15.72
Calgary	15.12	16.03	20.58	15.58	26.15	17.57	22.31	34.57	21.77	12.89	14	20.25
Chaplin	5.58	9.66	6.56	6.40	5.89	4.77	4.42	9.22			11	6.56
Edmonton	14.68	15.24	14.55	10.91	20.89	27.82	27.53	20.66	20.80	19.87	14	19.29
Indian Head			16.45	20.63	14.33	15.40	23.26	14.73	19.03	20.09	8	17.96
Macleod		12.78	12.77	13.58	17.76	10.08	12.21				7	13.18
Medicine Hat	14.13	18.18	17.27	15.90	22.28	22.05	20.63	13.68	10.24	9.70	14	16.40
Prince Albert	14.14	19.64	19.47	15.79	29.88	22.40	19.46	20.02	16.87		12	19.74
Qu'Appelle	15.29	22.10	12.56	21.65	19.25	16.52	26.47	24.17	20.09	22.22	14	20.03
Regina	18.90	9.32	13.28	13.22	11.54	21.51	14.35	16.09	14.93		9	14.79
Swift Current	12.29	14.11	16.24	15.25	19.38	14.60	18.48	17.64	16.96	12.84	14	15.77
W. Beaver Hills		15.15	22.09	26.41	25.39	22.13					6	22.23

DEPARTMENT OF AGRICULTURE

II.—MONTHLY PRECIPITATION—1904.

STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TO'L
Battleford	1.16	1.78	1.81	0.03	1.49	4.32	1.69	1.72	1.16	1.07	0.12	0.25	16.60
Bruderheim .....	.60	1.70	2.00	R	.88	5.26	0.87	1.17	2.47		0.05	0.78	...
Beaver Hills, W.	1.56	1.37	1.30	0.16	0.89		2.37	1.17		1.25	0.61	0.26	...
Bon Accord	1.58	1.35	1.45	0.32	.84	3.73	0.76	1.67	1.63		0.33		...
Calgary	0.15	0.15	0.86	0.14	1.56	1.99	1.74	3.75	0.69	1.35	0.20	0.31	12.89
“ Exp. Sta.	0.05	0.13	0.75	0.88	1.50	2.08	3.68	3.06	0.89	1.30	0.30	0.60	15.22
Chaplin	0.50	0.99	2.80		0.06						*	0.65	11.34
Crane Lake	0.70	0.50	1.40	0.44	1.46	1.51	1.04	1.27	1.73	0.64			...
Crescent Lake	0.65		2.71	1.22	1.23		2.71	0.75			0.39	0.97	...
Coutts	*	1.60		R	2.11	1.00	0.00	0.90					...
Didshury	0.80	0.30	0.70	1.40	1.27	3.79	1.20	1.18	1.78	0.94	0.10	0.80	14.26
Dirt Hills	1.60	1.40	3.80	1.00	2.59	3.23	3.22	1.70	3.52	1.37	0.25	0.50	24.18
Edmonton	1.91	1.96	1.81	0.29	0.70	4.39	2.79	1.58	2.06	1.13	0.16	1.09	19.87
Estevan	0.90	1.90	8.10	0.30	0.57	1.47	1.15	1.23	1.58	0.36	0.26	0.50	18.32
Foxleigh	0.68	1.44	3.50		2.50	1.65	2.53	1.14	3.21	0.30	0.50	0.70	...
Gatesgarth	1.40	2.20			1.43	2.49	1.46	0.77	1.89	0.21	0.20		...
Gleichen	0.20	0.25	0.40	0.60	1.43	3.10	0.30	1.49	0.77		0.10	0.18	...
Grenfell		1.90	2.80	0.83	1.05	4.63		1.29	1.33	0.19	0.50	0.90	...
High River	0.50	0.65	0.47	0.56			1.64						...
Indian Head	0.85	2.25	3.30	0.54	1.94	2.74	3.81	1.17	1.79	0.32	0.38	1.00	20.09
Innisfail	0.23	0.68	0.80	0.57	0.88	3.54	1.46	1.59	0.57		0.25	0.64	...
Knee Hill					0.67	0.45	2.75	1.92	1.08	0.57		0.00	...
Lacombe	0.50	1.15	0.85	0.20	2.10	2.78	1.86	1.36	1.47	0.30	0.20	0.96	13.73
Lethbridge	0.50	0.90	1.03	0.41	2.86	1.80	0.96	1.19	0.52	0.85	0.03	0.35	11.40
Manor	0.60	1.00		0.40	0.45					0.51	0.10	0.50	0.15
Melfort					0.37	1.51	2.59	1.06	0.48	1.65	0.35	0.08	...
Moose Jaw											0.21	0.27	...
Moosomin	0.45	1.30	1.80	0.28	0.93		0.95	1.22			0.35	0.00	0.28
Macleod					0.90	0.10	0.15	0.65	0.65	1.36	0.90	0.35	...
Medicine Hat	0.35	0.67	1.20	0.53	1.10	2.04	1.19	0.92	0.68	0.52	R	0.50	9.70
Nutana	0.95				0.25	2.63	2.41	4.54	1.19	2.64	1.25	0.15	0.60
New Hope						0.12	1.17						...
Onion Lake	0.72	0.99	2.60	0.60	1.31					0.90	0.32		0.00
Pakan	1.60	0.35	2.70	0.11	1.67		1.97	1.18	2.14	0.72	0.33	0.45	...
Pincher Creek	0.26	0.19	0.41	0.26	2.25	1.16	1.74	0.78	1.39	0.61	0.25	0.13	9.43
Prince Albert .....	.35	1.24	2.56		2.77	2.83	3.19	1.33	0.57	0.72	0.52	0.52	...
Qu'Appelle	1.14	2.25	4.11	0.85	2.22	2.58	3.78	1.23	2.11	0.36	0.74	0.85	22.22
Red Deer		1.02								6.21	1.51	0.32	0.25
Regina	0.40		2.30	0.58	2.48	1.84	2.31	1.54	2.31	0.29	R	0.70	...
" (2)	0.54	2.10	2.24	0.27	1.69	1.76	1.74	1.75	2.11	0.34	0.13	0.26	14.93
Saltcoats	0.40	0.40	1.40	0.20	1.27	2.70							...
Stirling	*	0.70	1.80	0.70	1.08	1.26	0.34	1.04	0.70	0.70	0.60	0.30	9.22
Swift Current	0.60	0.76	1.94	0.32	1.16	2.37	2.34	1.06	1.44	0.41	0.13	0.31	12.84
Threehills Crk.	0.35	0.74			0.60	0.50	2.81	0.81	1.08	1.36	0.60	0.54	0.81
Wetaskiwin	1.91	1.43	2.31	0.05	1.08	3.64	1.04	1.81	2.38	0.74	0.73	1.04	18.16
Weyburn					0.49	2.99	3.27	0.86	1.38				...

* Trace of Snow

R Rain but amount too small to measure.

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III—TEMPERATURE, 1904.

STATIONS	JANUARY						FEBRUARY						MARCH						APRIL						MAY						JUNE									
	Mean			Max.			Min.			Date			Mean			Max.			Min.			Date			Mean			Max.			Min.			Date						
	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean						
Banff.....	17.7	43.5	-21.6	19	6.2	37.1	27.2	9	15.7	44.2	-23.7	2	39.8	69.5	11.0	7	44.5	68.4	21.8	12	50.7	84.6	27.6	8	50.7	84.6	27.6	8	50.7	84.6	27.6	8	50.7	84.6	27.6	8	50.7	84.6	27.6	8
Battleford.....	1.3	43.6	-13.0	23	10.9	16.0	9.0	15	7.5	37.0	-19.0	1	36.6	75.9	13.0	1	51.3	78.0	32.0	8	58.6	83.0	38.0	13	58.6	83.0	38.0	13	58.6	83.0	38.0	13	58.6	83.0	38.0	13	58.6	83.0	38.0	13
Bon Accord.....	8.7	46.0	-20.7	23	13.9	11.8	-36.7	14	10.3	46.7	-28.6	1	40.3	76.6	18.7	17	48.3	77.4	25.4	12	56.0	82.5	34.2	8	56.0	82.5	34.2	8	56.0	82.5	34.2	8	56.0	82.5	34.2	8	56.0	82.5	34.2	8
Chaplin.....	6.4	45.0	-32.0	23	13.6	23.0	55.0	13	8.6	40.0	-22.0	1	35.5	58.9	10.0	7	45.5	80.9	30.0	20	54.3	86.0	26.0	8	54.3	86.0	26.0	8	54.3	86.0	26.0	8	54.3	86.0	26.0	8	54.3	86.0	26.0	8
Calgary Exp. Stn.....	17.6	39.0	-22.0	20	-1.1	38.9	-55.5	10	13.3	46.0	-25.8	1	43.0	76.0	18.9	15	48.5	78.0	23.0	12	51.3	80.0	20.5	12	51.3	80.0	20.5	12	51.3	80.0	20.5	12	51.3	80.0	20.5	12	51.3	80.0	20.5	12
Calgary Exp. Stn.....	18.0	38.4	-23.4	20	3.5	34.9	-56.6	10	13.7	45.0	-27.3	1	41.2	76.0	16.5	15	50.6	77.0	20.5	12	55.4	95.0	34.0	8	55.4	95.0	34.0	8	55.4	95.0	34.0	8	55.4	95.0	34.0	8	55.4	95.0	34.0	8
Crane Lake.....	14.8	37.0	-22.0	23	2.8	32.6	-58.0	9	12.6	42.0	-17.0	2	41.2	76.0	10.0	15	50.6	77.0	20.5	12	55.4	95.0	34.0	8	55.4	95.0	34.0	8	55.4	95.0	34.0	8	55.4	95.0	34.0	8				
Crescent Lake.....	3.3	34.0	-45.0	21	3.0	44.0	-32.0	10	14.2	50.0	-20.0	1	43.0	71.0	16.0	15	47.0	58.0	31.0	17	53.6	86.5	31.0	17	53.6	86.5	31.0	17	53.6	86.5	31.0	17	53.6	86.5	31.0	17				
Didsbury.....	10.3	52.0	-26.0	19	7.3	31.0	-32.0	10	10.7	38.0	-12.0	1	35.6	73.5	13.5	1	50.4	78.0	27.0	17	56.8	84.0	33.0	12	56.8	84.0	33.0	12	56.8	84.0	33.0	12	56.8	84.0	33.0	12				
Edmonton.....	4.7	37.5	-36.0	17	8.3	30.0	-36.0	10	11.1	30.0	-34.0	1	34.8	74.0	6.0	15	51.3	80.0	29.0	25	57.3	88.0	34.0	14	57.3	88.0	34.0	14	57.3	88.0	34.0	14	57.3	88.0	34.0	14				
Foxleigh.....	5.2	37.0	-27.0	21	6.1	36.0	-36.0	15	6.9	41.5	-19.0	2	36.0	72.0	6.0	1	51.2	80.0	24.0	24	57.9	89.0	29.5	8	57.9	89.0	29.5	8	57.9	89.0	29.5	8	57.9	89.0	29.5	8				
Gleichen.....	17.3	52.0	-18.0	20	2.4	43.0	-31.0	16	13.8	47.0	-25.0	2	43.0	71.0	19.0	16	48.7	77.0	25.0	24	53.6	89.0	34.0	14	53.6	89.0	34.0	14	53.6	89.0	34.0	14	53.6	89.0	34.0	14				
Graveland.....	1.8	39.0	-29.0	20	6.0	39.0	-38.0	7	17.0	43.0	-27.0	3	38.0	70.0	20.0	16	51.4	77.0	25.0	24	54.6	81.8	30.0	8	54.6	81.8	30.0	8	54.6	81.8	30.0	8	54.6	81.8	30.0	8	54.6	81.8	30.0	8
Gray Hill.....	15.5	45.5	-25.0	19	-6.0	33.0	-36.0	10	10.5	45.8	-19.0	2	41.9	77.0	20.0	1	48.1	79.0	24.0	12	54.6	81.8	30.0	8	54.6	81.8	30.0	8	54.6	81.8	30.0	8	54.6	81.8	30.0	8				
Hillsdown.....	18.7	52.0	-29.0	24	4.3	45.0	-25.0	14	17.0	51.0	-21.0	1	49.6	64.0	25.0	20	51.6	78.0	26.0	9	56.9	90.0	34.0	4	56.9	90.0	34.0	4	56.9	90.0	34.0	4	56.9	90.0	34.0	4				
High River.....	2.3	42.0	-47.0	10	10.5	32.0	-44.0	10	6.4	38.0	-36.0	11	33.6	72.0	7.0	20	49.5	75.0	24.0	12	52.6	83.7	32.3	14	52.6	83.7	32.3	14	52.6	83.7	32.3	14	52.6	83.7	32.3	14				
Knee Head.....	13.1	49.0	-23.0	19	6.8	38.0	-37.0	10	7.0	41.0	-30.0	1	39.8	78.0	11.8	1	45.6	76.0	24.0	12	54.4	81.2	32.3	14	54.4	81.2	32.3	14	54.4	81.2	32.3	14	54.4	81.2	32.3	14				
Lloydminster.....	22.1	53.6	-11.9	20	4.0	48.9	-25.3	10	16.9	49.7	-19.1	2	42.9	78.6	17.0	16	53.0	82.3	23.7	12	59.7	87.4	33.9	8	59.7	87.4	33.9	8	59.7	87.4	33.9	8	59.7	87.4	33.9	8	59.7	87.4	33.9	8
Lethbridge.....	21.0	51.0	-42.0	24	10.3	55.0	-38.0	9	7.4	47.0	-13.0	26	45.5	75.0	11.0	17	46.8	79.0	24.0	9	53.6	88.0	34.0	4	53.6	88.0	34.0	4	53.6	88.0	34.0	4	53.6	88.0	34.0	4	53.6	88.0	34.0	4
Manor.....	21.2	50.0	-14.6	2	0.3	39.0	-30.8	10	16.2	43.0	-12.0	22	45.7	77.0	19.7	16	55.0	79.0	30.7	25	62.0	95.0	35.7	8	62.0	95.0	35.7	8	62.0	95.0	35.7	8	62.0	95.0	35.7	8	62.0	95.0	35.7	8
Macleod.....	18.3	50.0	-14.6	2	0.3	39.0	-30.8	10	16.2	43.0	-12.0	22	45.7	77.0	19.7	16	55.0	79.0	30.7	25	62.0	95.0	35.7	8	62.0	95.0	35.7	8	62.0	95.0	35.7	8	62.0	95.0	35.7	8	62.0	95.0	35.7	8
Medicine Hat.....	3.4	30.0	-32.0	21	9.1	30.0	-46.0	15	6.7	37.0	-19.0	2	33.9	69.0	7.0	1	50.1	78.0	23.0	13	57.6	88.0	32.0	14	57.6	88.0	32.0	14	57.6	88.0	32.0	14	57.6	88.0	32.0	14	57.6	88.0	32.0	14
Moose Jaw.....	2.5	34.0	-43.0	24	17.0	20.0	-44.0	15	1.9	38.0	-55.0	12	33.4	68.0	5.0	10	48.9	74.0	29.0	9	54.9	86.0	30.0	8	54.9	86.0	30.0	8	54.9	86.0	30.0	8	54.9	86.0	30.0	8	54.9	86.0	30.0	8
New Hope.....	1.9	25.0	-40.0	23	12.6	20.0	-38.8	14	8.9	41.8	-20.5	1	38.5	73.0	11.5	14	51.2	79.5	26.0	5	54.9	86.0	30.0	8	54.9	86.0	30.0	8	54.9	86.0	30.0	8	54.9	86.0	30.0	8				
Onion Lake.....	2.7	62.0	-38.0	23	20	5.7	46.0	-22.0	9	13.7	44.0	-16.0	2	33.5	75.0	15.0	16	48.4	76.0	24.0	12	54.9	87.8	33.0	14	54.9	87.8	33.0	14	54.9	87.8	33.0	14	54.9	87.8	33.0	14			
Pincher Creek.....	21.6	48.0	-19.0	20	11.4	26.5	-46.5	15	8.0	41.8	-31.5	2	36.1	75.0	9.5	15	49.8	76.5	28.6	24	58.1	86.0	34.5	14	58.1	86.0	34.5	14	58.1	86.0	34.5	14	58.1	86.0	34.5	14				
Prince Albert.....	1.0	42.0	-42.5	24	7.3	30.4	-37.0	13	8.3	36.6	-18.0	10	34.2	72.0	8.0	6	51.6	75.4	24.2	24	57.4	88.0	32.0	14	57.4	88.0	32.0	14	57.4	88.0	32.0	14	57.4	88.0	32.0	14				
Qu'Appelle.....	9.1	34.8	-45.5	24	11.5	35.0	-40.0	15	5.6	32.0	-20.0	26	32.0	70.0	9.0	1	50.4	76.0	26.0	24	54.9	87.8	33.0	14	54.9	87.8	33.0	14	54.9	87.8	33.0	14	54.9	87.8	33.0	14				
Red Deer.....	0.7	36.0	-40.0	24	13.5	24.8	-39.8	24	11.5	5.6	37.6	-18.2	2	33.5	71.2	6.5	7	54.9	87.8	33.0	14	54.9	87.8	33.0	14	54.9	87.8	33.0	14	54.9	87.8	33.0	14							
Regina.....	0.7	39.5	-39.8	24	13.5	24.8	-39.8	24	11.6	39.0	-22.0	2	38.3	77.0	12.0	15	51.7	76.0	28.0	25	56.7	85.4	33.4	14	56.7	85.4	33.4	14	56.7	85.4	33.4	14	56.7	85.4	33.4	14				
Saskatoon.....	0.6	39.5	-39.8	23	13.5	24.8	-39.8	23	11.4	39.0	-22.0	10	40.2	79.0	14.5	5	54.4	78.5	25.0	25	58.1	87.8	33.0	14	58.1	87.8	33.0	14	58.1	87.8	33.0	14	58.1	87.8	33.0	14				
Swift Current.....	10.1	40.0	-29.0	23	19.8	34.0	-39.0	19	8.4	34.0	-26.5	19	1.1	46.0	73.0	13.0	1	47.4	76.0	26.0	12	60.7	90.0	35.0	24	60.7	90.0	35.0	24	60.7	90.0	35.0	24	60.7	90.0	35.0	24			
Threehills Creek.....	11.9	42.0	-26.5	20	4.5	30.0	-39.0	19	4.5	30.0	-39.0	14	9.1	46.0	73.0	13.0																								

DEPARTMENT OF AGRICULTURE

III.—TEMPERATURE, 1904—Continued.

STATIONS	JULY				AUGUST				SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER					
	Mean		Max	Min.	Mean		Max.	Min.	Mean		Max.	Min.	Mean		Max.	Min.	Mean		Max.	Min.	Mean		Max.	Min.	Date	
	Mean	Max	Max	Min.	Max	Max	Min.	Date	Mean	Max.	Min.	Date	Mean	Max.	Min.	Date	Mean	Max.	Min.	Date	Mean	Max.	Min.	Date		
Banff	59.3	87.6	94.0	39.0	26	55.3	82.4	31.0	12	49.4	75.8	22.8	13	42.9	70.8	20.0	24	35.9	53.7	2.5	24	19.8	41.0	19.4	26	
Battleford	62.7	94.0	94.0	39.0	14	58.9	83.0	32.0	28	50.8	76.0	26.0	13	43.4	71.0	18.0	5	31.6	61.0	9.0	30	11.2	39.0	30.0	26	
Boa Accord	56.3	90.4	96.0	36.0	26	56.6	79.9	33.0	28	48.2	73.5	21.3	13	43.7	75.6	21.0	24	35.9	53.7	2.5	24	19.8	41.0	19.4	26	
Chamlin	60.0	94.0	94.0	31.0	18	56.6	85.0	32.0	21	51.0	78.0	21.0	13	43.7	75.6	21.0	24	35.9	53.7	2.5	24	19.8	41.0	19.4	26	
Calgary	50.9	90.4	91.0	41.0	26	54.9	86.0	31.5	21	51.0	86.0	22.0	13	42.0	75.4	19.0	5	31.8	63.4	4.0	23	18.6	54.9	23.0	26	
Calgary Exp. Sta.	66.5	97.0	97.0	41.0	26	62.7	92.0	37.0	21	52.6	85.0	22.0	13	47.0	72.6	21.0	5	39.6	67.0	5.0	29	20.9	52.0	23.0	26	
Crescent Lake	59.7	85.0	89.0	39.0	6	58.3	82.0	31.8	21	50.7	84.0	18.0	20	44.2	74.0	18.0	4	37.5	65.0	4.0	30	14.4	38.0	31.0	26	
Didsbury	64.1	94.0	94.0	32.0	24	58.3	94.0	30.0	20	50.7	84.0	18.0	20	44.2	74.0	18.0	4	37.5	65.0	4.0	30	14.4	38.0	31.0	26	
Estevan	63.4	91.0	94.0	40.0	6	60.9	89.0	36.0	7	51.1	84.0	28.0	11	42.7	67.0	19.0	25	35.6	63.0	5.0	30	16.6	46.0	34.0	26	
Edmonton	61.8	91.2	96.0	36.0	24	58.0	82.0	36.0	28	50.8	75.0	23.0	13	44.5	70.0	21.0	24	35.7	63.0	5.0	30	16.6	46.0	34.0	26	
Foxleigh	61.9	92.0	93.0	33.0	26	58.0	86.0	26.1	21	48.3	80.0	24.0	11	42.4	66.0	11.0	18	31.3	64.0	10.0	30	10.8	42.0	32.0	26	
Gatesgarth	62.2	97.0	97.0	37.0	26	58.4	92.0	29.0	22	50.8	85.0	24.0	11	43.0	71.0	17.0	22	32.5	69.0	11.0	30	18.9	49.0	24.0	24	
Glenfield	61.3	96.5	97.5	31.5	18	59.5	89.5	34.0	24	50.4	79.0	20.0	13	44.1	69.0	16.0	15	35.7	62.0	6.0	30	10.2	36.0	30.0	26	
Gray Hill	60.6	90.0	94.0	41.0	27	58.7	85.0	35.0	21	50.8	78.0	28.0	13	44.1	69.0	21.0	23	36.6	67.0	8.0	30	10.2	36.0	30.0	26	
Hillsdown	60.9	90.0	90.0	36.0	24	55.1	83.0	37.0	7	49.4	75.4	18.0	13	43.7	73.3	13.0	23	36.6	63.4	0.5	29	19.3	35.0	24.6	26	
High River	61.9	97.5	97.5	31.5	23	58.0	86.0	33.5	27	49.3	80.0	24.0	10	43.0	76.0	18.0	5	30.8	66.0	0.0	29	16.1	45.0	23.0	26	
Indian Head	61.2	91.2	92.0	38.0	26	55.0	85.0	31.0	25	50.5	85.0	24.0	13	40.8	72.0	9.0	28	31.1	61.0	0.0	24	9.1	39.0	33.0	26	
Knee Hill	58.1	91.7	91.7	36.0	17	55.2	85.0	31.0	25	50.6	85.0	24.0	13	40.0	65.4	13.5	5	43.4	71.7	10.5	29	25.7	51.9	26.2	26	
Lloydminster	59.3	90.1	90.1	35.0	14	54.7	81.0	25.6	28	50.8	85.0	24.1	11	49.1	72.2	22.0	24	29.8	67.0	10.0	30	11.2	44.0	32.0	26	
Leithbridge	67.1	102.3	93.8	19	44.4	95.7	40.4	21	56.8	89.7	25.0	20	40.4	68.0	14.0	29	44.9	74.0	10.0	30	24.9	53.0	38.8	26		
Manor	63.9	96.0	96.0	39.0	19	60.9	91.0	39.0	21	52.7	84.0	24.0	10	44.0	71.7	21.7	24	41.4	63.0	10.0	24	24.9	52.0	38.8	26	
Macleod	70.4	102.0	101.7	41.0	19	66.1	95.0	38.0	21	57.7	87.0	33.7	13	48.9	78.0	21.7	24	41.5	64.0	10.0	24	24.9	52.0	38.8	26	
Melfort	65.9	85.0	86.0	38.0	31	55.0	87.0	27.5	21	48.3	82.0	27.0	11	41.0	69.0	20.0	22	30.2	68.0	9.6	30	11.2	44.0	32.0	26	
Moose Jaw	61.7	95.0	95.0	36.0	27	59.2	91.0	28.5	21	50.2	84.0	25.0	11	42.2	67.0	10.0	23	31.0	63.0	13.0	30	11.2	44.0	32.0	26	
New Hope	60.6	85.5	85.5	40.0	6	57.4	88.0	37.0	7	50.2	84.0	28.0	13	44.0	71.7	21.7	24	41.5	64.0	10.0	30	11.2	44.0	32.0	26	
Onion Lake	62.2	90.0	97.0	19	59.1	86.0	36.0	21	52.1	83.0	29.0	20	46.2	79.0	26.0	4	40.2	64.0	7.0	24	27.0	50.0	-18.0	26		
Pincher Creek	62.5	91.5	91.5	27	56.2	78.5	31.5	28	48.1	71.5	27.5	20	40.8	67.5	21.5	6	29.8	65.5	-12.0	30	5.4	38.8	-36.0	27		
Prince Albert	60.6	81.5	81.5	31.5	28	59.0	84.4	34.4	21	50.5	86.8	28.2	20	44.5	76.0	20.3	22	38.8	64.7	-3.0	30	10.7	43.0	-36.0	27	
Qu'Appelle	62.5	89.4	89.4	39.7	21	59.0	84.4	34.4	21	46.7	76.0	18.0	13	45.3	73.3	22.0	5	32.1	63.0	-11.0	30	8.6	41.0	-33.0	27	
Red Deer	61.7	93.9	93.9	29.0	14	57.9	88.0	31.0	21	49.4	83.0	25.0	10	42.3	70.0	17.0	26	32.1	63.0	6.2	30	9.1	37.5	-32.0	26	
Regina	61.7	90.1	90.1	36.0	13	57.3	82.8	32.0	28	48.4	72.8	24.0	20	41.0	69.2	18.0	5	32.3	64.0	-2.0	30	17.8	46.0	-25.0	26	
Saskatoon	61.3	90.1	90.1	36.0	13	56.2	88.5	37.0	21	53.0	84.0	29.0	13	45.9	74.9	20.0	26	37.4	64.0	-2.0	30	17.8	46.0	-32.0	26	
Swift Current	65.0	93.0	93.0	36.0	24	57.0	89.5	33.5	13	50.4	81.0	12.5	13	41.6	70.5	10.0	24	31.0	65.0	-11.0	29	11.2	43.0	-31.0	26	
Three Hills Creek	60.2	94.0	94.0	36.0	2	54.6	86.0	33.0	8	54.6	82.0	75.0	20.0	13	41.6	69.0	18.0	24	33.4	61.0	-9.0	29	14.6	43.0	-31.0	26
Wetaskiwin	56.4	82.0	80.0	30.0	2	54.6	80.0	33.0	8	54.6	82.0	75.0	20.0	13	41.6	69.0	18.0	24	33.4	61.0	-9.0	29	14.6	43.0	-31.0	26

IV.—LATITUDE, Longitude and Elevation of Meteorological Stations in the North-West Territories.

STATION	LAT. N.		LONG. W.		ELEVATION ABOVE SEA LEVEL	STATION	LAT. N.		LONG. W.		ELEVATION ABOVE SEA LEVEL
	Deg	Min	Deg	Min	Feet		Deg	Min	Deg	Min	Feet
Alameda . . .	49	50	102	17	1,892	Kneehill . . .	51	55	103	0	3,100
Banff.	51	10	115	35	4,542	Lethbridge . . .	49	40	112	50	2,982
Battleford . . .	52	41	108	20	1,620	Macleod.	49	44	113	24	3,128
Bon Accord . . .	54	5	113	22	...	Manor	49	33	102	2	2,064
Calgary.. . . .	51	2	114	2	3,389	Medicine Hat . .	50	1	110	37	2,161
Cardston	49	12	113	18	...	Melfort.	52	47	104	30	1,515
Chaplin	50	27	106	40	2,202	Moose Jaw	50	21	105	35	1,745
Crane Lake . . .	50	0	109	50	2,516	Moosomin.	50	0	101	37	1,884
Crescent Lake .	50	59	102	25	...	Prince Albert. . .	49	11	114	0	3,750
Coutts.	49	1	111	58	3,463	Pincher Creek. . .	53	10	106	0	1,432
Didsbury	51	39	114	8	3,300	Qu'Appelle	50	30	103	47	2,115
Duck Lake	52	54	106	9	1,645	Red Deer.	52	15	113	30	2,795
Edmonton. . . .	53	33	113	30	2,158	Regina.	50	27	104	37	1,885
Estevan.	49	12	103	4	1,858	Saltcoats	51	1	102	8	1,714
Gatesgarth . . .	50	20	105	0	1,879	Saskatoon.	52	15	106	30	1,571
Gleichen.	50	52	112	54	2,952	Swift Current. . .	50	20	107	45	2,439
Grenfell.	50	23	102	53	1,957	Wetaskiwin. . . .	53	00	113	20	2,480
High River . . .	50	35	113	52	3,394	Weyburn	49	42	103	54	1,847
Indian Head. . .	50	28	103	40	1,924	Whitewood.	50	20	102	15	1,966
Iunisfail.	52	2	113	57	3,087						

DEPARTMENT OF AGRICULTURE

DVV—MEAN Daily Temperature, Total Precipitation and Crop Yields, by Districts 1898—1904.

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DEPARTMENT OF AGRICULTURE

V.—MEAN Daily Temperature, Total Precipitation and Crop Yields, by Districts 1898—1904.—Continued.

DISTRICTS	MEAN DAILY TEMPERATURE Degrees Fahr.						TOTAL PRECIPITATION Inches						YIELD PER ACRE Bushels						
	Sept.-Oct.			Nov.-Mar.			April-June			July-Aug.			Nov.-Mar.			April-June			
	Sept.	Oct.	Nov.	Mar.	April	June	July	Aug.	Sept.	Oct.	Nov.	Mar.	April	June	July	Aug.	Sept.	Oct.	Nov.
13...	1898	48.8	44.9	51.3	62.9	57.8	50.5	45.8	50.5	55.8	51.6	60.1	51.8	52.2	51.6	45.8	49.5	50.5	41.25
	1899	44.1	40.6	48.0	56.9	52.6	53.0	45.6	51.0	56.9	52.6	60.1	51.8	52.2	53.0	45.6	49.5	50.5	42.96
	1900	45.6	41.8	52.0	56.1	50.1	51.8	46.7	51.8	56.1	52.0	58.0	51.2	51.2	52.0	46.7	50.5	51.0	37.11
	1901	43.7	22.0	48.0	60.1	46.2	47.2	46.1	47.2	58.0	46.2	60.5	47.1	47.2	47.2	46.1	50.5	51.0	35.27
	1902	46.1	23.2	46.2	58.0	47.2	48.2	46.1	47.2	58.0	47.2	58.9	47.5	47.5	48.2	46.1	50.5	51.0	21.41
	1903	46.9	18.4	47.1	60.5	47.1	48.2	46.9	47.1	58.9	47.1	60.5	47.5	47.5	48.2	46.9	50.5	51.0	30.82
14...	1904	44.9	12.7	47.5	58.9	27.2	27.2	44.9	27.2	58.9	27.2	58.9	27.5	27.5	27.2	44.9	50.5	51.0	31.51
	1898	45.8	14.1	47.7	62.2	57.7	53.4	44.4	57.7	62.2	57.7	60.6	51.8	51.8	53.4	44.4	50.5	51.0	46.50
	1899	44.4	11.9	44.0	56.7	56.7	53.5	44.7	56.7	56.7	53.5	56.7	48.6	48.6	53.5	44.7	50.5	51.0	44.42
	1900	44.7	21.9	47.6	50.6	47.2	44.4	42.8	47.2	50.6	47.2	50.6	48.6	48.6	44.4	42.8	50.5	51.0	37.06
	1901	42.8	26.6	46.6	59.1	47.2	50.0	42.8	47.2	59.1	47.2	59.1	48.6	48.6	47.2	42.8	50.5	51.0	20.77
	1902	43.9	21.5	45.1	58.8	45.1	42.8	43.9	45.1	58.8	45.1	58.8	42.8	42.8	43.9	43.9	50.5	51.0	17.02
15...	1903	43.9	19.2	46.1	60.6	46.1	42.8	43.9	46.1	60.6	46.1	60.6	42.8	42.8	43.9	43.9	50.5	51.0	23.83
	1904	45.0	14.4	47.2	58.9	27.2	27.2	45.0	47.2	58.9	27.2	58.9	27.5	27.5	27.2	45.0	50.5	51.0	26.26
	1898	47.2	16.8	47.8	62.2	57.3	53.5	44.6	47.8	62.2	57.3	60.6	51.8	51.8	53.5	44.6	50.5	51.0	39.66
	1899	43.9	14.0	43.9	57.3	57.3	53.5	45.2	43.9	57.3	57.3	56.6	48.6	48.6	53.5	45.2	50.5	51.0	41.09
	1900	45.2	23.9	51.3	57.6	51.3	53.5	47.9	23.1	47.2	51.3	57.6	51.2	51.2	53.5	47.9	50.5	51.0	43.11
	1901	47.9	23.1	47.2	59.1	47.2	44.4	47.9	23.1	47.2	59.1	47.2	49.4	49.4	44.4	47.9	50.5	51.0	33.98
16...	1902	46.6	23.0	45.7	58.2	45.7	42.8	46.6	23.0	45.7	58.2	45.7	56.1	56.1	42.8	46.6	50.5	51.0	29.80
	1903	46.0	18.2	45.7	56.1	45.7	42.8	44.6	16.5	45.7	56.1	45.7	60.0	60.0	42.8	46.0	50.5	51.0	24.75
	1904	44.6	16.5	48.5	56.5	48.5	42.8	44.6	16.5	48.5	56.5	48.5	60.0	60.0	42.8	46.0	50.5	51.0	31.42
	1898	52.4	20.1	51.8	68.8	23.2	23.2	51.8	20.1	51.8	68.8	63.0	51.5	51.5	23.2	51.8	51.8	51.58	
	1899	48.7	16.0	48.7	63.0	20.1	20.1	48.7	16.0	48.7	63.0	63.0	43.0	43.0	20.1	48.7	51.5	51.57	
	1900	52.6	24.6	58.1	62.1	33.8	33.8	52.6	24.6	58.1	62.1	64.9	3.92	3.92	33.8	52.6	52.6	52.6	35.95
17...	1901	47.2	25.1	49.6	64.9	3.92	4.90	47.2	25.1	49.6	64.9	64.9	9.54	9.54	4.90	47.2	52.6	52.6	23.96
	1902	48.4	27.5	48.6	60.9	2.13	3.09	48.4	27.5	48.6	60.9	60.9	13.01	5.54	3.09	27.5	52.6	52.6	33.34
	1903	50.3	21.8	49.1	56.7	1.14	3.69	50.3	21.8	49.1	56.7	56.7	4.36	4.67	1.14	21.8	52.6	52.6	34.57
	1904	48.9	20.1	50.2	62.9	1.51	3.21	48.9	20.1	50.2	62.9	62.9	3.21	3.21	1.51	20.1	52.6	52.6	27.88
18...	1898	50.5	20.1	50.5	68.8	23.2	23.2	50.5	20.1	50.5	68.8	63.0	51.5	51.5	23.2	50.5	50.5	50.5	37.17
	1899	47.2	16.0	47.2	63.0	20.1	20.1	47.2	16.0	47.2	63.0	63.0	4.92	4.92	20.1	47.2	50.5	50.5	35.95
	1900	52.6	24.6	58.1	62.1	33.8	33.8	52.6	24.6	58.1	62.1	64.9	2.02	2.02	33.8	52.6	52.6	52.6	35.87
	1901	47.2	25.1	49.6	64.9	3.92	4.90	47.2	25.1	49.6	64.9	64.9	13.01	5.54	4.90	25.1	52.6	52.6	34.99
19...	1902	48.4	27.5	48.6	60.9	2.13	3.09	48.4	27.5	48.6	60.9	60.9	4.36	4.67	1.14	27.5	52.6	52.6	24.99
	1903	50.3	21.8	49.1	56.7	1.14	3.69	50.3	21.8	49.1	56.7	56.7	4.36	4.67	1.14	21.8	52.6	52.6	24.99
	1904	48.9	20.1	50.2	62.9	1.51	3.21	48.9	20.1	50.2	62.9	62.9	3.21	3.21	1.51	20.1	52.6	52.6	24.99
	1898	50.5	20.1	50.5	68.8	23.2	23.2	50.5	20.1	50.5	68.8	63.0	51.5	51.5	23.2	50.5	50.5	50.5	37.17
20...	1899	47.2	16.0	47.2	63.0	20.1	20.1	47.2	16.0	47.2	63.0	63.0	4.92	4.92	20.1	47.2	50.5	50.5	35.95
	1900	52.6	24.6	58.1	62.1	33.8	33.8	52.6	24.6	58.1	62.1	64.9	2.02	2.02	33.8	52.6	52.6	52.6	35.87
	1901	47.2	25.1	49.6	64.9	3.92	4.90	47.2	25.1	49.6	64.9	64.9	13.01	5.54	4.90	25.1	52.6	52.6	34.99
	1902	48.4	27.5	48.6	60.9	2.13	3.09	48.4	27.5	48.6	60.9	60.9	4.36	4.67	1.14	27.5	52.6	52.6	24.99
21...	1903	50.3	21.8	49.1	56.7	1.14	3.69	50.3	21.8	49.1	56.7	56.7	4.36	4.67	1.14	21.8	52.6	52.6	24.99
	1904	48.9	20.1	50.2	62.9	1.51	3.21	48.9	20.1	50.2	62.9	62.9	3.21	3.21	1.51	20.1	52.6	52.6	24.99
	1898	50.5	20.1	50.5	68.8	23.2	23.2	50.5	20.1	50.5	68.8	63.0	51.5	51.5	23.2	50.5	50.5	50.5	37.17
	1899	47.2	16.0	47.2	63.0	20.1	20.1	47.2	16.0	47.2	63.0	63.0	4.92	4.92	20.1	47.2	50.5	50.5	35.95
22...	1900	52.6	24.6	58.1	62.1	33.8	33.8	52.6	24.6	58.1	62.1	64.9	2.02	2.02	33.8	52.6	52.6	52.6	35.87
	1901	47.2	25.1	49.6	64.9	3.92	4.90	47.2	25.1	49.6	64.9	64.9	13.01	5.54	4.90	25.1	52.6	52.6	34.99
	1902	48.4	27.5	48.6	60.9	2.13	3.09	48.4	27.5	48.6	60.9	60.9	4.36	4.67	1.14	27.5	52.6	52.6	24.99
	1903	50.3	21.8	49.1	56.7	1.14	3.69	50.3	21.8	49.1	56.7	56.7	4.36	4.67	1.14	21.8	52.6	52.6	24.99
23...	1904	48.9	20.1	50.2	62.9	1.51	3.21	48.9	20.1	50.2	62.9	62.9	3.21	3.21	1.51	20.1	52.6	52.6	24.99
	1898	50.5	20.1	50.5	68.8	23.2	23.2	50.5	20.1	50.5	68.8	63.0	51.5	51.5	23.2	50.5	50.5	50.5	37.17
	1899	47.2	16.0	47.2	63.0	20.1	20.1	47.2	16.0	47.2	63.0	63.0	4.92	4.92	20.1	47.2	50.5	50.5	35.95
	1900	52.6	24.6	58.1	62.1	33.8	33.8	52.6	24.6	58.1	62.1	64.9	2.02	2.02	33.8	52.6	52.6	52.6	35.87
24...	1901	47.2	25.1	49.6	64.9	3.92	4.90	47.2	25.1	49.6	64.9	64.9	13.01	5.54	4.90	25.1	52.6	52.6	34.99
	1902	48.4	27.5	48.6	60.9	2.13	3.09	48.4	27.5	48.6	60.9	60.9	4.36	4.67	1.14	27.5	52.6	52.6	24.99
	1903	50.3	21.8	49.1	56.7	1.14	3.69	50.3	21.8	49.1	56.7	56.7	4.36	4.67	1.14	21.8	52.6	52.6	24.99
	1904	48.9	20.1	50.2	62.9	1.51	3.21	48.9	20.1	50.2	62.9	62.9	3.21	3.21	1.51	20.1	52.6	52.6	24.99

CROP STATISTICS.

The ground, when seeding commenced, was generally well saturated with moisture; in some districts to such an extent that wheat sowing was seriously interfered with. Many farmers in the eastern portion of the Territories put in less wheat and more oats on this account. Seeding was general from about April 20 to May 20, but in Western Alberta about a week earlier. As will be seen from the figures given below there was a marked decrease in the area devoted to flax. This was largely due to the practical failure of this crop in 1903 and also to the fact that market conditions for flax were exceedingly unsatisfactory from a producer's standpoint.

The conditions at harvest time were somewhat disappointing. Excessive rainfall in the eastern portion of the Territories towards the latter part of August kept the crops growing when they should have been ripening and a considerable quantity of immature wheat was damaged by a frost that was general throughout the Territories on the night of August 20. Rust also made its appearance about this time, and while the damage from this source does not appear to have been particularly noticeable in any one locality, there is no doubt that it detrimentally affected the total yield of wheat to a considerable extent.

In Western Assiniboia and Southern Alberta (Crop Districts 6 and 16) very dry weather was experienced during the growing season and consequently the crops suffered, the yields being considerably below the average. Even where irrigation waters were available many farmers failed to make use of them at a time when their crops might have been assured by such action.

Harvest commenced about August 20 for spring wheat, while fall wheat was first cut about August 8.

Crop Districts.

District No. 1—Area 4,716 square miles. Carnduff, Alameda and South Moose Mountain districts. Includes districts adjacent to the lines of the south-western branch of the Canadian Pacific Railway and Pipe-stone extension (in Territories) and the South Moose Mountain country.

District No. 2—Area 14,638 square miles. Weyburn and Yellow Grass districts. Includes the country adjacent to the Soo Line between Rouleau and Estevan and the Wood Mountain country.

District No. 3—Area 3,600 square miles. Moosomin, Whitewood, Wapella and Broadview districts. Includes the country adjacent to main line of Canadian Pacific Railway between Fleming and Broadview and the district north-east of Moose Mountain.

District No. 4—Area 5,086 square miles. Grenfell, Wolseley, Indian Head and Qu'Appelle districts. Includes country adjacent to main line of Canadian Pacific Railway and to the Qu'Appelle Valley between Grenfell and Balgonie.

District No. 5—Area 15,845 square miles. Regina and Moose Jaw districts. Includes country adjacent to the main line of the Canadian Pacific Railway Company between Balgonie and Rush Lake and along line of Qu'Appelle, Long Lake and Saskatchewan Railway, as far as Dundurn.

District No. 6—Area 37,720 square miles. Crane Lake, Maple Creek and Medicine Hat districts. Includes country adjacent to main line of Canadian Pacific Railway from Rush Lake to Langevin—almost entirely ranching district.

District No. 7—Area 8,735 square miles. Yorkton and Saltcoats districts. Includes country adjacent to the line of the Manitoba and North-Western Railway between Langenburg and Yorkton and the country east of Touchwood Hills.

District No. 8—Area 47,904 square miles. Includes all that portion of the Provisional District of Saskatchewan lying east of the 104th degree of west longitude. It is not yet under settlement.

District No. 9—Area 29,908 square miles. Prince Albert district. Includes the country adjacent to the line of the Qu'Appelle, Long Lake and Saskatchewan Railway Company from Saskatoon to Prince Albert and a large unsettled tract.

District No. 10—Area 19,440 square miles. Battleford district. Includes the country adjacent to the valley of the Saskatchewan river in the Battleford and Bresaylor districts with a large unsettled tract.

District No. 11—Area 16,848 square miles. Includes the western 14 ranges of townships in the Provisional District of Saskatchewan.

District No. 12—Area 48,286 square miles. Edmonton, Strathcona and Wetaskiwin districts. Includes the country adjacent to the line of the Calgary and Edmonton Railway Company from Wetaskiwin north and the settlements along the Saskatchewan Valley, also a large tract of unsettled territory.

District No. 13—Area 13,608 square miles. Red Deer, Lacombe and Ponoka districts. Includes the country adjacent to the line of the Calgary and Edmonton Railway Company, from Red Deer to Wetaskiwin and westward to the Rocky Mountains.

District No. 14—Area 11,412 square miles. Innisfail, Olds and Didsbury districts. Includes country adjacent to the line of the Calgary and Edmonton Railway from Carstairs to Penhold and westward to the Rocky Mountains.

District No. 15—Area 14,796 square miles. Central Alberta or Calgary district. Includes the country adjacent to the main line of the Canadian Pacific Railway from the western boundary of the Provisional District of Assiniboia to the Rocky Mountains and to the line of the Calgary and Edmonton Railway from Nanton to Carstairs.

District No. 16—Area 11,772 square miles. Lethbridge, Macleod and Pincher Creek districts. Includes the country adjacent to the line of the Calgary and Edmonton Railway south of Nanton, and to the lines of the Alberta Railway, the Crow's Nest Railway and the St. Mary's River Railway.

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VI.—CROP STATISTICS.

DISTRICT AND YEAR	SPRING WHEAT			OATS			BARLEY			FLAX		
	Bushels	Acreage	Yield per acre	Bushels	Acreage	Yield per acre	Bushels	Acreage	Yield per acre	Bushels	Acreage	Yield per acre
1...	1898...	804,168	50,455	15.93	292,259	14,919	19.63	45,718	1,892	24.16	...	...
	1899...	1,239,759	78,813	15.73	497,148	16,334	30.50	42,685	2,107	20.25	...	...
	1900...	549,956	79,375	6.92	274,504	14,276	19.22	45,514	1,881	23.64	...	...
	1901...	2,165,042	105,476	20.58	16.81	863,648	22.755	38.04	51,727	1,721	30.05	24.58
	1902...	2,630,470	128,253	20.51	1,280,203	30,610	41.83	57,953	3,465	25.60	81,408	8.878
	1903...	3,046,517	157,001	19.46	1,542,626	33,408	28.83	116,729	4,631	25.30	126,774	9.16
	1904...	3,400,993	212,292	16.02	1,837,148	59,218	31.02	103,785	4,433	23.41	32,991	5.448
	1898...	...	...	...	...	...	...	...	...	...	...	...
	1899...	22,000	1,466	15.00	12,000	...	387	31.00	2,000	80	25.00	...
	1900...	4,896	1,682	2.91	1,715	108	15.97	4	1	4.00	...	...
2...	1901...	117,725	5,365	21.94	18.62	61,325	1,454	42.17	34.80	399	21	9.99
	1902...	391,738	15,893	24.64	197,399	5,026	39.27	2,971	1,06	28.02	17,498	2.050
	1903...	443,720	31,396	14.13	458,947	12,285	37.50	7,702	330	23.33	53,744	8.53
	1904...	946,772	47,776	19.83	1,016,129	30,389	33.42	37,053	1,643	23.16	54,606	5.257
	1898...	1,142,119	71,372	16.00	237,118	8,460	27.99	37,462	1,429	22.99	...	...
3...	1899...	1,079,784	65,472	16.49	470,828	17,911	26.28	33,755	1,638	20.35	...	...
	1900...	568,254	71,807	7.91	1,62,572	1,453	9.32	14,472	1,452	9.96	...	...
	1901...	2,052,567	84,002	24.50	17.40	786,347	24,284	32.38	76,405	2,734	27.94	28.58
	1902...	2,019,954	96,504	29.93	1,104,072	36,911	29.84	80,453	2,949	27.27	13.03	
	1903...	2,374,874	132,888	17.87	1,125,398	40,118	28.05	140,629	5,756	24.30	6,975	4.50
4...	1904...	2,113,833	124,485	16.98	1,460,317	80,348	18.17	100,441	4,203	23.39	2,144	1.430
	1898...	1,968,666	104,949	18.75	379,249	14,568	26.05	23,597	1,204	19.59	...	...
	1899...	908,491	118,532	7.63	595,496	19,938	29.86	19,866	836	23.15	...	...
	1900...	3,862,153	135,675	28.47	369,802	24,474	14.70	15,813	1,036	15.11	...	...
	1901...	3,321,647	143,577	23.13	1,310,335	21,577	60.72	32,86	45,534	1,363	35.12	24.13
5...	1902...	3,923,050	173,385	22.62	1,711,808	33,205	35.28	39,716	1,394	28.41	1,835	16.7
	1903...	3,939,462	206,034	19.12	1,634,416	49,010	33.35	113,582	4,903	23.16	11,583	1,672
	1904...	1,576,585	51,085	30.80	1,576,585	51,085	2,225	53,370	2,225	23.98	4,883	4.82

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CROP STATISTICS—Continued.

DISTRICT AND YEAR	SPRING WHEAT				OATS				BARLEY				FLAX			
	Bushels	Acreage	Yield per acre	Average yield	Bushels	Acreage	Yield per acre	Average yield	Bushels	Acreage	Yield per acre	Average yield	Bushels	Acreage	Yield per acre	Average yield
5	1898	900,034	42,859	20.99	278,761	11,614	24.05		14,360	756	18.99					
	1899	1,361,033	51,057	26.65	489,993	13,921	35.19		13,822	648	21.33					
	1900	871,877	73,306	11.81	255,592	16,539	15.45		7,309	748	10.03					
	1901	2,613,861	90,840	28.78	1,147,176	22,039	52.05	33.33	31,396	749	41.91	24.73				
	1902	3,143,557	124,728	23.20	1,351,455	44,778	30.18		35,171	1,080	32.56		15,294	1,269	12.05	10.86
	1903	3,200,500	163,740	19.55	1,753,673	45,885	38.21		47,465	1,856	25.57		31,204	3,182	9.80	
6	1904	3,215,817	183,216	17.55	1,857,679	59,242	31.35		24,906	1,226	20.36		29,180	2,696	10.82	
	1898	500	28	17.85	9,800	200	44.00		1,550	42	36.90					
	1899	1,290	35	36.85	28,871	568	50.82		2,104	47	44.76					
	1900	1,578	49	32.20	19,886	690	28.82		238	36	9.38					
	1901	7,148	198	36.10	73,358	1,622	45.22	41.10	2,646	65	47.70	29.13				13.97
	1902	4,803	222	21.60	121,970	2,441	49.96		1,764	42	42.00					
7	1903	13,555	719	18.85	94,425	2,331	49.50		3,423	171	20.01		797	58	13.74	
	1904	9,838	690	14.28	40,075	1,596	25.10		1,431	52	27.51		209	14	14.92	
	1898	175,323	13,487	13.27	248,868	9,218	27.00		8,454	496	17.20					
	1899	164,609	10,595	15.53	246,913	8,298	29.75		7,640	373	20.52					
	1900	11,975	12,369	9.37	224,943	12,279	18.31		5,980	443	13.49					
	1901	353,100	13,952	28.30	737,360	15,638	47.26	34.79	21,005	453	46.36	26.87				8.47
8	1902	562,264	23,413	24.91	1,081,758	24,471	44.20		41,685	1,415	29.45		17,279	2,749	6.28	
	1903	993,659	50,366	19.52	1,547,968	50,020	34.38		76,975	2,939	26.19		22,886	2,617	8.74	
	1904	871,107	47,683	18.26	1,890,600	56,899	32.22		95,367	3,455	27.63		12,024	795	15.12	
	8	Not yet	under	settlement												
	1898	283,925	17,002	17.65	127,205	6,840	18.69		49,803	2,275	22.00					
	1899	238,849	15,632	15.27	164,527	5,655	29.10		37,539	1,834	21.10					
9	1900	400,616	23,535	17.92	269,344	9,303	27.86		59,250	2,607	22.73					
	1901	760,969	33,508	22.71	17.97	496,280	12,977	38.33	29.18	121,594	4,118	20.52	24.72			10.67
	1902	1,005,498	46,923	21.42		811,888	26,581	30.54		106,418	3,778	28.16		14,463	1,131	12.77
	1903	1,083,492	66,047	16.43		958,181	32,835	29.18		154,506	6,880	22.45		29,227	2,959	9.87
	1904	1,412,416	85,975	16.42		1,302,179	43,835	29.75		176,764	7,056	25.05		10,128	950	10.66

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10.	1898 ...	14,049	702	20·33	16,152	538	30·66	87	22·00	17·21	
		7,518	440	17·08	12,472	453	27·53	53	22·50		
11.	1898 ...	24,028	1,165	20·62	36,653	1,071	34·22	1,942	24·38	10·15	
		23,504	937	25·08	42,037	905	46·45	1,997	37·67		
12.	1901 ...	1,902	30·379	1,347	22·74	61,035	1,366	44·67	2,501	26·33	10·36
		1,903	32,406	1,913	16·94	55,943	2,025	27·62	4,136	167	
13.	1901 ...	1,904	25,462	1,490	17·35	91,824	3,289	27·91	4,227	22·01	8·23
		1,903	7,242	367	19·74	13,756	343	40·10	446	16	
14.	1901 ...	1,904	9,010	718	12·54	18,603	849	21·91	27·14	732	15·68
		1,898	627,201	24,122	26·10	1,115,358	24,246	46·53	213,103	6,551	
15.	1898 ...	690,642	27,604	25·02	1,406,864	32,802	42·87	120,389	4,560	15·68	
		443,423	23,699	18·78	1,476,913	45,930	32·15	123,543	5,101		
16.	1901 ...	619,385	24,899	24·88	2,760,901	65,679	42·03	33·72	292,712	8,311	14·06
		1,902	496,762	29,067	17·09	1,809,337	62,454	28·97	271,438	12,568	
17.	1901 ...	556,081	3,700	33,634	16·53	2,700,956	91,899	29·71	625,664	25,293	8·01
		528,782	30,264	17·47	3,078,965	103,453	29·65	1,021,881	40,168		
18.	1898 ...	27,432	1,246	22·25	134,853	3,290	41·25	17,268	617	8·23	
		30,647	1,608	19·03	163,450	3,804	42·96	23,876	768		
19.	1900 ...	34,152	1,840	18·56	389,395	10,492	37·11	59,268	2,179	8·32	
		45,963	2,025	22·69	524,580	13,275	39·51	69,833	2,171		
20.	1901 ...	25,668	330	14·78	181,131	18,521	20·92	63,879	2,982	11·73	
		1,902	30,687	1,640	18·71	792,630	23,060	34·37	183,111	5,940	
21.	1903 ...	22,016	1,041	21·14	739,359	20,638	35·82	178,757	5,079	11·14	
		1,898	572	26·00	130,204	2,830	46·50	15,603	447		
22.	1901 ...	8,338	471	17·70	126,822	2,885	44·42	7,202	306	15·68	
		8,377	465	18·91	178,051	4,803	37·16	16,329	689		
23.	1901 ...	4,879	330	14·78	129,333	4,383	29·50	33·01	21,651	24·26	
		20,921	9,306	443	21·00	314,639	9,955	31·60	71,252	4,185	
24.	1901 ...	8,135	346	23·51	497,542	16,700	29·79	243,464	9,269	21·81	
		1,898	88,221	4,107	21·48	208,760	5,263	39·66	17,938	620	
25.	1899 ...	38,541	1,808	21·31	254,238	6,186	41·09	15,315	533	13·92	
		37,838	1,723	21·96	324,981	9,161	43·11	25,076	732		
26.	1901 ...	29,341	1,298	22·60	467,247	11,167	41·84	35,306	1,039	14·12	
		7,969	331	24·02	411,273	10,471	39·27	38,393	1,287		
27.	1902 ...	12,624	663	19·04	531,116	14,198	37·41	86,034	3,476	13·92	
		26,403	1,137	23·22	321,062	39·79	122,678	3,904	31·42		

DEPARTMENT OF AGRICULTURE

CROP STATISTICS—Continued.

DISTRICT AND YEAR	SPRING WHEAT			OATS			BARLEY			FLAX			
	Bushels	Acreage	Yield per acre	Bushels	Acreage	Yield per acre	Bushels	Acreage	Yield per acre	Bushels	Average yield	Yield per acre	
16	1898 . . .	34,292	1,280	26.79	137,672	3,185	43.22	14,752	467	31.58	... . . . .	... . . . .
	1899 . . .	63,947	3,573	17.89	216,414	5,826	37.15	10,035	433	23.17	... . . . .	... . . . .
	1900 . . .	58,833	2,597	22.65	241,337	6,713	35.95	10,512	468	22.44	... . . . .	... . . . .
	1901 . . .	152,810	6,192	24.68	316,205	8,813	35.87	34.40	20,895	872	23.96	... . . . .	11.73
	1902 . . .	295,200	13,312	22.17	523,273	14.307	36.34	26,823	1,148	23.35	2,351	181	12.88
	1903 . . .	499,316	23,032	21.68	776,357	22.454	34.57	86,460	3,460	24.99	2,255	210	10.73
	1904 . . .	193,316	14,106	13.70	425,240	15,251	27.88	40,388	2,490	16.22	98	10	9.80 }
	Territories	5,542,478	307,580	18.01	3,040,307	105,077	28.93	449,512	17,092	26.29	... . . . .	... . . . .
	1898 . . .	6,915,628	363,523	19.02	4,686,036	134,938	34.81	337,421	14,276	23.62	... . . . .	... . . . .
	1899 . . .	4,028,294	412,864	9.73	4,226,152	175,439	28.08	333,216	17,044	20.72	... . . . .	... . . . .
	1900 . . .	12,808,447	504,697	25.37	18,951	11,113,066	229,439	48.43	795,100	24,702	32.18	25.44	7.94
	1901 . . .	13,956,850	625,758	22.0	10,661,295	310,367	34.35	870,417	36,445	23.88	158,185	17,067	9.26
	1902 . . .	16,029,149	837,234	19.00	14,179,705	440,662	32.17	1,741,269	69,667	24.65	292,853	32,431	9.03
	1903 . . .	16,723,412	957,253	17.47	16,335,519	523,634	31.19	2,205,424	86,154	25.59	171,279	16,264	10.53 }

DISTRICT AND YEAR	FALL WHEAT				SPELTZ		
	Bushels	Acreage	Yield per acre	Average yield	Bushels	Acreage	Yield per acre
1 . . . 1904					24,113	837	28·80
2 . . . 1904					4,005	137	29·23
3 . . . 1904					6,656	250	26·62
4 . . . 1904					1,722	66	26·09
5 . . . 1904					18,128	830	21·84
6 . . . 1904							
7 . . . 1904					540	26	20·76
9 . . . 1904					5,500	220	25·00
10 . . . 1904					12	1	12·00
11 . . . 1904					128	8	16·00
12 . . { 1903	3,410	294	11·60	{ 11·82			
12 . . { 1904	622	47	13·23	{ 11·82	1,430	66	21·66
13 . . { 1903	467	24	19·50	{ 30·24			
13 . . { 1904	10,063	344	30·99	{ 30·24	595	30	19·83
14 . . { 1903	4,388	256	17·14	{ 20·94			
14 . . { 1904	20,139	915	21·95	{ 20·94	154	7	22·00
15 . . { 1903	2,621	112	23·40	{ 27·43			
15 . . { 1904	10,494	366	28·67	{ 27·43	184	7	26·26
16 . . { 1903	71,532	2,754	25·97	{ 19·37			
16 . . { 1904	110,707	6,624	16·63	{ 19·37	63	2	31·50
The Territories :							
1903	82,418	3,440	23·95	{ 19·98			
1904	152,125	8,296	18·33	{ 19·98	63,230	24·87	25·42

NOXIOUS WEEDS.

I submit herewith the report of Mr. T. N. Willing, Chief Inspector of Noxious Weeds, which covers the subject very fully. I would like, however, to emphasise the remarks made with regard to the presence of noxious weeds in town and city municipalities. I am sorry to say that some municipalities seem to wholly neglect the destruction of weeds, and town sites may be seen overgrown with many of the worst kinds, more especially shepherd's purse. This is possibly the worst enemy of the horticulturist in the west, and where it is allowed to grow without restriction those citizens who desire to make their premises look neat and well cared for are labouring at a grave disadvantage. It might be pointed out that because a man happens to live in a town the fact does not exempt him from the provisions of The Noxious Weeds Ordinance, and he is just as liable to prosecution as the farmer is for having noxious weeds growing on his premises. The most satisfactory and comprehensive method of dealing with the weed problem in towns is for municipalities to pass and enforce stringent by-laws on the subject and to set a good example to their citizens by seeing to it that the streets, parks, cemeteries and other public places are kept scrupulously free from these untidy and unsightly pests.

The Department is indebted to Dr. Janies Fletcher, the Dominion Botanist and Entomologist, Ottawa, for his assistance in securing and superintending the production of the colour plate used in the new weed bulletin.

Report of the Chief Weed Inspector.

I have the honour to report that in the endeavour to keep the more recent settlers posted with regard to the necessity for careful attention to the weed problem, the number of inspectors was increased, 46 men spending 1,080½ days working through their various districts, and it may be mentioned that the increase of crop area to work over was 433,645 acres. Three districts inspected in former years were not supplied owing to failure to secure in time men suitable and willing to undertake the work. These districts were South Prince Albert, Kinistino and North Regina; the last mentioned was, however, partly inspected by an inspector from an adjoining district.

An early trip was made by the inspectors in order that the stink weed might be attended to before there was a chance of it ripening, this plan having worked well in other seasons.

The destruction of weeds on 33 unoccupied farms was accomplished with the aid of the Local Improvement Councillors at an expenditure of \$528 00.

In several districts it was found necessary to insist on portions of the crops being ploughed down by the owners, and the effect in a neighbourhood was found to be even better than from the imposition of a fine. Complaint has frequently been made of the smallness of fines imposed and the lenience of justices before whom cases have been brought by weed inspectors. Shirkers are found in most communities, their interest in weed destruction being just sufficient to enable them to plead not guilty of neglect to comply with the notice served on them. Work done under compulsion is never entirely satisfactory.

For the encouragement of those fighting stink weed it may be pointed out that many farms which were at one time badly infested with this weed are now, by the well-directed efforts of the owners, comparatively clean and producing profitable crops, and even on some unoccupied places where stink weed has been cut regularly under directions of the inspectors little can now be found. Canada thistles are also reported to have been destroyed by close cutting in the Edmonton and Saskatoon districts, none being now found in some places where they grew formerly.

The necessity for the burning of strawstacks and screenings on weed infested farms within districts where herd law is in force is very apparent, many complaints being made of stock wandering about after the 30th October, when the restriction of the herd law terminates, and thus spreading weed seeds. A great many notices to burn after threshing were served but in most cases inspectors were unable to see whether these instructions were carried out or not as their term of service had expired. The habit of threshing into granaries militates against the prompt burning of straw and proper cleaning of threshing sites. Rented farms rapidly become weedy and are a means of infesting the neighbouring lands, each new tenant putting in a crop without knowing the dirty condition of the land, and it would be in most cases an unwarranted hardship to compel him to destroy his crop. Moreover the wish to clean the land is generally absent as the profit would not be for him.

Few Indians or Metis are up-to-date farmers, consequently the Indian reserves and lands occupied by halfbreeds are often found to be badly overrun by weeds and will be sources of trouble until change of

ownership. The Indian Department when appealed to notified their agents and farm instructors that weeds should be destroyed in accordance with the Ordinance but results have not always been apparent in the diminution of the weeds. Settlers occupying lands adjoining reserves have frequently complained of the spread of weeds to their farms.

The lands farmed by Doukhobors are somewhat badly infested with weeds because of the very dirty grain with which they first sowed their fields. It is reported that most of them are working well in the effort to eradicate these weeds since they have had the nature of them, and the law relative to them, pointed out, but it will take years of good work to succeed. Some of our other foreign immigrants are rather indifferent to the weeds and also to the efforts of inspectors, thus making progress difficult. Although many of the new settlers got weeds by sowing grain grown on dirty farms, others have brought as bad with them, using it for feeding and even for seeding purposes.

Lands formerly occupied as stock ranches are usually well stocked with noxious weeds which have without restraint been allowed to grow about corrals and stables where they were introduced in oats used for feeding the horses. Small areas which had been under cultivation are now beds of Canada thistles, wild mustard, stink weed, etc., which the new settlers will have to deal with.

The irrigation ditches need close watching as weed seeds are carried by the water and the banks prove excellent seed beds. In the Lethbridge district these were fairly well attended to but some of the ditches in other districts were noticed to be infested with Canada thistles.

Weeds on roads are almost certain to spread rapidly throughout a district and consequently inspectors have instructions to insist on these weeds being destroyed by the owners of the adjoining lands.

On the right-of-way of railways the Canada thistle has proved very persistent, although the inspectors have annually seen to its being cut before seed ripened. It, however, has steadily spread from the roads and is now encroaching on adjoining lands. Section men confine their interest in weed destruction mainly to the roadbed, and the attention given to the balance of the right-of-way is not sufficient to eradicate any weed, much less thistles or stink weed. In addition to the weeds mentioned Russian pigweed has made rapid progress from one end of the country to the other along the railways, and tumbling mustard is abundant on portions of the C.P.R. through ranching districts where no weed inspectors work.

It has not been considered advisable for our inspectors to undertake weed inspection to any extent within towns or cities, as they have little enough time for work amongst the farmers, but the weeds on the streets, parks, gardens and nuisance grounds are so conspicuous and threatening in some instances that we must interfere for the protection of the surrounding districts. I am not aware of any city in the Territories that has yet a bylaw dealing with the destruction of weeds.

Weeds during the past season have not been especially bad on the farms in the eastern districts, except in crops sown on stubble, where biennials made a good growth to the detriment of the crops. Blue bur has been steadily spreading and it has been listed as a noxious weed; none too soon to suit the better class of farmers. The Russian pigweed has amply demonstrated its power for harm and is well placed in the

same list. It is considered ridiculous by some that shepherd's purse should be classed as a noxious weed detrimental to field crops, but an experienced inspector near our eastern boundary south of Moosomin has reported it harder on a wheat crop than stink weed, and another, in Alberta, reports as follows:

"Shepherd's purse is developing into an extraordinarily vigorous and dangerous weed. For the first time within my experience of weed inspection I observed spaces of oat crops literally killed out by this weed, all room being taken up by it. It is a powerful, strongly-rooted plant with leaves at its base pressing flat to the ground, and is almost impossible to pull. Its stems were about half an inch thick and with its masses of lower growth it smothered the grain in two oat fields I visited, one being south-east of Red Deer and one close to Knee Hill Valley."

In Northern Alberta a great deal of seed of poor vitality was sown and the thin stand gave weeds a good chance to grow. Lamb's quarters was very abundant, reports stating that summer fallow had not the effect of subduing it or the ball mustard. If this is the case I can only say that the summer fallowing was not done properly. I have frequently seen fields with weeds ripening seed on them after the work of the fallow was stopped, and, ball mustard being a winter annual, it will, if allowed to make a start in the fall, continue its growth the following season. To be effective the ploughing of summer fallow should be done before any weed can ripen seed, and the cultivation afterwards should be frequent enough to kill all the weeds that make a start before winter. Harrowing will not kill weeds that have been allowed to become strongly rooted and tough, the work must be done at a much earlier stage of their growth. I have no hesitation in saying that it would pay the farmers of the Edmonton district to study the subject of summer fallowing for weed destruction, it would be a great help in reducing the quantity of wild oats, etc., and help them to market their grain at a better profit. In the same district a plant of the mint family, which may be called "Hairy mint," *Stachys palustris*, was noticed to be spreading through the grain fields, its white rootstocks filling the soil. This native plant grows naturally in low damp ground, but the successions of wet seasons have favoured its spread to the higher land.

In Southern Alberta the dryness of the summer made very noticeable the bad effects of the wild buckwheat with which so many of the fields are infested.

For the first time that troublesome weed known as wild radish, *R. raphanistrum*, has been found in the Territories. It was found at several points in Assiniboia growing in experimental plots which had been sown with alfalfa seed procured from Russia. This emphasises the necessity not only for careful examination of all seed brought from a distance but also watch being kept on fields sown with such seed.

Wild oats are found to be much more abundant in Assiniboia than formerly, being largely the result, now showing, of the distribution a few years ago, through the agency of the Dominion Immigration Department, of badly infested oats for seed at the time when a sufficient supply of the home grown oats was not available because of frost having injured their power of germination. It is not found possible for weed inspectors to detect, or for farmers to destroy, wild oats before the grain is far advanced, when much damage might be done by attempted hand pulling, so that it makes considerable headway on a farm before any steps are taken for its eradication. The summer fallow is not so effective

as for other weeds because the oat will grow from a considerable depth and being well rooted harrowing does not destroy but rather cultivates it. A flat or duckfoot cultivator would be more effective than a drag. The best system is to work it out by means of late spring ploughing and green crops or a very early ripening barley followed by a good discing.

There has been a tendency in some districts to revert to late ploughing for summer fallow, probably because the abundance of moisture caused seeds to germinate so freely and the weeds to grow so fast that it entailed more constant work during the season to destroy them. It is so much easier to let the weeds make a good growth and then plough them down and call it summer fallow that many will follow that plan, but what are the results? I can only say weeds.

By request I again made an exhibit of weeds at the Calgary Fair and judged certain classes of exhibits.

A new bulletin on weeds has been prepared, as the entire supply of No. 3 is exhausted, 10,000 copies having been distributed throughout the country. The new one will appear under the title of "Hints to Grain Growers" and will be more fully illustrated, stink weed being represented in colour.

By kind permission of the Commissioner I was able to accept the invitation of the Entomological Society of Ontario to attend its annual meeting at London, and read a paper on our work under The Weed Ordinance and the progress made in natural history in the Territories.

The acquisition of a good microscope will be a great aid in our researches but I would point out that our present office is totally unfit for any botanical or entomological extension of our work, not only is there lack of space but also of light, which is of course a necessity. The space devoted to the weed branch of this Department should be large enough to permit of the accumulation of a small reference museum, both of plants and insects and sufficient room and light to work amongst them.

For the extension of the educational feature of our work I would suggest the fitting up of a light waggon or van with exhibits suitable for attendance at fairs or for meetings at the various country points. In such a carriage your chief inspector could visit the various inspection districts and be more in touch with the work, giving instruction wherever he might have occasion to stop.

Again the Department has been favoured with the services of Prof. Fletcher in addressing a series of meetings on the subject of weed destruction. Starting with a meeting at Red Deer where lantern and slides were used for illustration we proceeded to Edmonton and after a very poorly attended meeting in a hall entirely unsuited to the use of a lantern we drove to Spruce Grove and there met a good representation of the farmers of the district who listened attentively and appreciatively to our addresses. This meeting was held in the open air as were those on the following days at Ray, New Lunnan and Bruderheim. The farms about Ray were noticeably cleaner than many other portions of the Edmonton district. Between St. Albert and New Lunnan some fields were noticed to be badly infested with wild oats. A good meeting was held at Star where there was considerable discussion relative to the eradication of stink weed, some unfortunately having it on their farms. This weed was also noticed in a field we passed on the east side of Beaver Lake, between which point and Vegreville, which was the limit

of our trip eastward, were some farms belonging to Galicians, the buildings on which had a very picturesque and thrifty appearance, and the crops appeared fairly free from weeds. About Vegreville settlement is thicker, many of the people being from Eastern Canada or the States. There was a good turnout and the interest in our subject was keen at this the last of our series of twelve meetings. The most prevalent weed in the district through which we drove was undoubtedly wall mustard. Weed inspection will soon be necessary between Beaver Lake and Battleford where settlers are rapidly filling in.

For the coming season 54 inspection districts have been laid out and still all settlements are not included by any means. One of the worst features of our work is the fact that so many new settlers are extremely careless as to whether they sow clean seed or dirty and have not been accustomed to the wholesome restraint of a weed law.

Before closing my report I must thank the various inspectors for their active and hearty co-operation to the best of their ability in the fight against that great drawback to profitable farming, the multitude of weeds that grow and flourish at the expense of the farmer.

T. N. WILLING,
Chief Weed Inspector.

HARVEST HELP.

As in former years the Department interested itself actively in the distribution of the harvesters brought in by the harvest excursion trains. In dealing with this matter in 1902 and 1903 the Department had adopted a system of registration of farmers requirements. Registers were sent to all Canadian Pacific Railway Agents in the grain-growing districts of Assiniboia, and farmers were invited by advertising and other means to register at their nearest station the number of hands required and probable period of employment. Although given a fair trial, and notwithstanding the fact that every effort was made by the Department to give publicity to the scheme, it was found in practice that only a small percentage of farmers took the trouble to avail themselves of the opportunities offered for making their wants known. It was, therefore, decided to make a change in the method of collecting information as to harvest help requirements, and the newly reorganised Local Improvement Districts suggested themselves as convenient means of achieving the desired object. Accordingly on August 1st a circular letter was sent to all Councillors of Local Improvement Districts asking them to state on post cards supplied for the purpose their estimate of the number of harvest hands required in their particular districts, and also when in their judgment harvest would likely commence.

The Department's corps of crop correspondents was also made use of in this connection. I am pleased to say that, on the whole, the new plan was fairly successful. A very large proportion of replies were received, with the result that when the Department's representatives went to Winnipeg to meet the harvest trains it was found possible to place in their hands a useful estimate of the requirements of the Territories in the matter of harvest help.

The arrangements for distribution to Territorial points were again placed in the hands of Messrs. T. N. Willing and George Harcourt of this Department, and these gentlemen arrived in Winnipeg on the 26th of August. Unfortunately Mr. Willing was compelled by illness to return to Regina almost immediately, and the whole burden of the work fell upon Mr. Harcourt, who, I need scarcely say, responded to the call with his characteristic energy. The Department's representatives worked throughout in harmony with the officials of the railway company in charge of this branch of the work, with satisfaction to all concerned. The tabulated statement subjoined shows the estimates made by the Department and the railway company with the distribution along the main line and branches:

RAILROAD DISTRICTS	Department's estimate	Railway Co.'s estimate	No. distributed
North-Western Branch.....	230	175	124
Main Line, Fleming to Broadview	524	480	290
Arcola Branch	260	285	347
Souris Branch	539	575	845*
Main Line, Grenfell to Balgonie	517	531	584
Main Line, Pilot Butte to Caron.....	558	588	2,245*
	2,628	2,634	4,435

As usual it was found that a number of excursionists insisted on booking as far as the special rate would take them, regardless of local demands, and this in spite of the efforts put forth both by the railway company and this Department to prevent them. It is on this account that the figures marked * appear so inflated. It is estimated that at least 250 in excess of requirements booked to Estevan and about 1,500 to Moose Jaw. A large proportion of these proved to be miners from the Maritime Provinces thrown out of work on account of labour troubles. They came west with the excursions in anticipation of finding work in the coalfields of South-eastern Assiniboia and British Columbia. Many of those who came so far west found themselves under the necessity of paying their own fares back to where they could get work while others went on at their own expense for the purpose of seeing the country. No doubt many did not return east. Making allowance for these facts it will be conceded that the figures in the several columns of the above table show remarkable agreement.

It was noted that the class of harvester who took advantage of the excursions last year were a very respectable and fine lot of men.

II.—LIVE STOCK**HORSES.**

All the more important questions relating to the horse industry of the Territories are fully dealt with in the Report of the Secretary of the Territorial Horse Breeders' Association which forms Appendix B to this report.

ENROLLMENT OF STALLIONS.

The new Horse Breeders' Ordinance came into effect on the first of the year covered by this report. The Ordinance makes it compulsory for every stallion owner travelling a stallion for profit or gain to have the animal enrolled in this Department, the fee for this being \$2. The certificate issued by the Department shows either that the animal is purebred and registered in a stud book recognised by the Department, or that it is a grade or crossbred animal and not eligible for registration. A copy of the certificate must appear on all bills and other advertising matter. Failure to comply with the provisions of the Ordinance renders the offender liable to a penalty of \$25.00.

The following statement shows the description and number of animals enrolled under the Ordinance during the past calendar year. The Ordinance in its working appears to be giving satisfaction. A feature of its administration has been the large number of pedigrees sent to the Department in connection with enrollments in which the date of birth of the animal has been altered. This has usually been done in a clumsy manner not difficult to detect and indicates the carelessness with which these documents are scrutinised by many purchasers of stallions. It is scarcely necessary to point out that pedigrees which have been tampered with are invalid and it has been necessary for the Department to refuse enrollment as purebred of a large number of animals on this account.

The Ordinance itself has been the subject of much favourable comment by horse breeders and the agricultural press both in Canada and the United States, although the remark is sometimes made that it does not go far enough and that it should guarantee the soundness of stallions as well as their breeding. Legislation in this direction at the present time, would, however, be attended with many practical difficulties.

Enrollment of Stallions 1904.

<i>Breed.</i>	<i>No.</i>
Belgian.....	2
Cleveland.....	2
Clydes.....	190
French Canadian.....	1
French Coach.....	2
French Draft.....	5
German Coach.....	1
Hackney.....	8
Percherons.....	42
Shires.....	26
Standardbred.....	12

Breed.	No.
Suffolk Punch	6
Thoroughbred.	6
Total pure bred	303
Grades	249
Crossbred	1
Total enrollment.	553

CONTAGIOUS DISEASES OF HORSES.

The Commissioner of the Royal North-West Mounted Police, in his report to the Dominion Minister of Agriculture, dated October, 1904 says:

Glanders, I regret to report, is very prevalent in some parts of the Territories. In Regina district, which includes work done in Assiniboia as far west as Caron, 173 horses have been destroyed. In Prince Albert district 94 were destroyed and in Calgary district 42 horses. In Maple Creek district no cases were reported, and only one suspected case in the Macleod and Lethbridge districts. In Edmonton district 18 horses were destroyed, a very marked decrease from last year. Every effort is being made to eradicate this disease. A large number of the farmers in Assiniboia turn out their horses in the winter, and this has proved a fruitful source of spreading the disease, as, if there is one diseased horse in the district, he is sure to come in contact with numerous horses and spread the disease. Badly ventilated and foul stables are, I believe, largely responsible for the spread of the disease. Amongst quite a large class of people any kind of a hole appears to be good enough to keep a horse in.

Mange has been more prevalent amongst horses, I am sorry to say. In certain sections of the western part of the Territories it has been quite too common. Every precaution has been taken to eradicate the disease. Herds in which the disease appeared were closely quarantined and treated, and in most instances with success, but it still lingers in places. In the northern and eastern part of the Territories some cases have occurred at various points, but the inspectors state that such cases did not originate there, but occurred in horses brought from the west. It is hoped that with the treatment already given and the compulsory dipping that the disease may soon disappear.

Maladie du Coit.—This is a new disease in the Territories, and its occurrence has created much alarm amongst horse owners in the western Territories. Prompt and energetic measures have been taken for the suppression and stamping out of this disease. In the infected districts no stallion is now allowed to run at large. About 3,000 mares have been examined, and at present there are 246 confined in the quarantine pasture west of Lethbridge.

Early in the year an outbreak of a disease new to the Territories occurred in a band of horses near Lethbridge, and on investigation by authorities of the Veterinary Branch of the Federal Department of Agriculture, was found to be what is known as *Dourine*, otherwise *Maladie du Coit*, or equine syphilis. The disease is of the most serious nature, and a careful watch should be kept for the symptoms of it. It has been in existence in the United States for a number of years, and in the case above cited would appear to have been introduced from that country.

The following remarks by a recognised authority represent what is known about the disease at the present time:

"The cause of the disease is a trypanosoma, similar to the *Surra* parasite, and it is conveyed from diseased to healthy animals mainly during the act of covering. The symptoms in the horse are very insidious. It commences in a mild manner, attacking only at first the external genital organs; this is soon followed by enlargements and swellings, then by an eruption somewhat similar to nettle rash. Finally it affects the lumbar nervous system, causes nervous degeneration, emaciation, paralysis of the hind limbs and death. Although the horse is able to cover some time after affection there is no doubt that he is unable to propagate, even though there be rarely any clinical symptoms of his being affected. The disease is, as far as we know, incurable, and, moreover, the horse is a source of infection to mares, the latter contingency being an extreme

danger, as to anyone without professional training the primary symptoms are almost unnoticeable.

In mares the diagnosis is even more difficult and the insidious nature of the disease more marked than in the horse. They are nevertheless capable of conveying infection from the first onset of the disease, from which time they also appear to be sterile. This it is that makes the question such a serious one to deal with. The difficulty of localising or saying definitely how far it exists can only be realised when we take into consideration the number of mares in outlying districts who are seldom seen by anyone acquainted with the disease, and, if they are, fail to show any symptoms to an ordinary observation."

While prompt measures were taken by the authorities to deal with the Lethbridge outbreak so soon as it came to their notice it was unfortunately the case that a number of animals had been sold before the nature of the disease was understood in view of which the following regulations were drawn up by Dr. J. G. Rutherford, the veterinary director general, and promulgated by Order in Council:

Regulations Relating to Maladie du Coit.

1. Every owner, breeder or importer of, or dealer in horses, shall on perceiving the appearance of *maladie du coit* among the animals owned by him or under his special care give immediate notice to the Minister of Agriculture and to the nearest veterinary inspector of the Department of Agriculture of the facts discovered by him as aforesaid.

2. Every veterinary surgeon practicing in Canada shall immediately, on ascertaining that an animal is affected with *maladie du coit*, give similar notice to the Minister and to the nearest veterinary inspector.

3. In the North-West Territories the notice required to be given by the two preceding sections of these regulations shall be deemed sufficient if given to the Commissioner, Assistant Commissioner, or other officer of the North-West Mounted Police force, or to one of the veterinary staff sergeants of the said force.

4. No entire horse more than one year old shall, after the passing of this order, be permitted to run at large on unfenced lands in the territory of Alberta, or in that portion of the territory of Assiniboina lying west of the Third Principal Meridian, and the owner of horse failing to comply with this order shall be deemed guilty of a breach of these regulations and of The Animal Contagious Diseases Act.

5. Any entire horse more than one year old found running at large within the area defined above, may be seized and held on the order of any duly authorised veterinary inspector of this Department, who shall forthwith whenever possible notify the owner of the said horse of such seizure, and the said horse if not claimed within thirty days of such seizure, may be castrated, and no indemnity shall be allowed to the owner in case of damage arising out of or resulting from said castration, seizure or detention.

6. No animal which is affected with *maladie du coit* shall be permitted to run at large or to come in contact with any animal which is not so affected.

7. Any veterinary inspector or duly authorised person may declare to be an infected place within the meaning of "The Animal Contagious Diseases Act, 1903," any common, field, stable or other place or premises, also any market, railway yard, stockyard, pen, wharf, railway car or other vehicle where animals are found which are affected with *maladie du coit*.

8. Every veterinary inspector or other duly authorised person shall have full power to order animals affected or suspected of being affected with *maladie du coit* to be collected for inspection, and, when necessary, to be detained and isolated or otherwise dealt with in accordance with the instructions of veterinary director general.

9. The expenses of and incidental to the collection, isolation, seizure, castration, or otherwise dealing with horses for the purposes of these regulations, shall be borne by the owners of the animals, and, if advanced by the inspector or other authorised person shall, until paid, be a charge upon the said animals.

10. No animal shall be removed out of an infected place without a licence signed by an inspector or other duly authorised person.

11. The veterinary director general may, from time to time, order the slaughter, castration, or other disposition of animals affected with *maladie du coit*.

12. Every person who violates any provision of these regulations shall, for every such offence, incur a penalty not exceeding two hundred dollars.

A few cases of swamp fever are reported to have occurred, but the disease was not so prevalent as in former years.

CATTLE.

The more important phases of the cattle industry are fully dealt with in the Report of the Secretary of the Territorial Cattle Breeders' Association. (Appendix A.)

Health of Cattle.

Mange continued to give trouble on the ranges during the winter of 1903-4, but in August the Federal Department of Agriculture issued regulations requiring the compulsory dipping of all animals in the infected area. The work, though beset with many difficulties, was on the whole effectively carried out, and the results have been such as to justify the drastic measures adopted. No doubt vigorous enforcement of the dipping regulations during the approaching season will almost entirely eradicate this repulsive disease.

No other disease of a contagious or infectious nature has affected Territorial cattle during the past year.

SUMMARY OF DISTRICT REPORTS.

Eastern Assiniboia.—Owing to this part of the country being largely taken up for wheat growing, very few cattle are now kept under range conditions. There was an abundant supply of hay, which was of a better quality than the previous year. The natural increases were good, but the losses last winter were somewhat heavier than the previous one, averaging nearly 8 per cent. The general health of the cattle throughout the district was good, very few cases of disease having been reported. Prices realised show a slight increase.

Dundurn.—A very good season is reported from this district owing to the mild winter. The losses were small and the natural increases show a good percentage. Cattle are in good condition, and no cases of disease were reported. The hay was above the average both in quantity and quality.

Prince Albert—Ranching is not carried on very extensively. Cattle are in good condition, and the winter's losses were practically nil. The hay was very good and the grass cured well. Average prices were very fair.

Maple Creek.—Very heavy losses are reported in this district from wolves, and mange also having broken out made the losses heavier than the previous year. Although the season was very dry the grass cured well and a quantity of good hay was put up. This has also been a bad season for export, 50 per cent of the cattle not being up to the usual standard. The prices for beef steers were not so good as last year. There is a large percentage of rough cattle from Manitoba dogies.

Medicine Hat.—The general health of the cattle was good with the exception of a few cases of blackleg and mange. Mange was general, but is now almost entirely obliterated by dipping. This was not considered a very good season; the losses were greater than has been the case for some years; the calf crop was light on account of the cold spring, and prices were very low. Hay was over the average in quality

and the range cured well. Cattle were in good condition to enter the winter. The presence of wolves accounts for some of the losses.

Macleod and Lethbridge.—The general health and condition of cattle was very good and the winter's losses were light. No disease was reported other than a few cases of mange. The natural increases average 66 per cent. Prices were lower than usual, 3c. per lb. being offered, the price for range cattle averaging \$40. A few losses from wolves were reported in the southern part of the range during the summer. Hay was generally good, but rather sparse and poor in quality toward the south.

Pincher Creek.—The winter's losses average 5 per cent., which is very favourable compared with last year, the increase averaging 75 per cent. The season was a fairly prosperous one for stockmen, the prices realised were from \$40 to \$48. Mange was fairly prevalent, but owing to the enforcement of dipping regulations the general health of the cattle was good. The quantity and quality of the hay put up was above the average.

Porcupine Hills.—There were practically no losses in this district, the cattle faring much better than in the preceding year. The percentage of natural increases being very high as the cattle were generally well looked after. Hay was above the average and the range cured well. Steers fetched from 3c. to $3\frac{1}{2}$ c. and cows about \$30. A few cases of blackleg were reported among calves, but the general health of the cattle was good.

High and Sheep Rivers.—Owing to the exceptionally fine weather the winter's losses were very small and the natural increases averaged 70 per cent., which is considered the best for some years. A large quantity of splendid hay was put up. The price of beef steers averaged \$45. A number of cases of blackleg, mange and lumpy jaw were reported, but the general health of the cattle was good. The losses from wolves was small, but coyotes were numerous and did considerable damage among young calves.

Calgary and Bow River West.—The losses from yearling dogies was heavy, bringing up the average which would otherwise have been small. A very large quantity of hay was put up, the quality being above the average. The frost had no effect on the range which cured well. Prices were generally good. Export cattle reached \$45 to \$55 and cows \$25 to \$35. There was an excellent calf crop and the losses through the summer were slight. Mange was somewhat prevalent, but the general health and condition of cattle was good.

Northern Alberta.—Owing to the open winter the losses in this district were small and the season compares very favourably with those previous. A good calf crop is reported and the general health of the cattle is good. Some losses were experienced through the summer from rustlers, but very few from disease or wolves. Prices were very low.

DAIRY INDUSTRY.

As is well known the creameries in the Territories are under the management of the Dairy Commissioner's Branch of the Department of Agriculture, Ottawa, and this Department is indebted to Mr. J. A. Ruddick, Dairy Commissioner, for the statistics given below. This

industry cannot be said to be in a flourishing condition in the eastern part of the Territories, although there are many districts there which are eminently adapted for its successful prosecution. Undoubtedly one of the principal drawbacks is the expensiveness of farm help, and another that even in those portions of the country which are suitable only for mixed farming there exists the tendency to sacrifice every energy to the production of as much wheat as possible, a policy which must in the long run inevitably result in disappointment.

The following from the Report of the Commissioner of Agriculture and Dairying indicates the present market conditions for Territorial butter:

"British Columbia has always been considered the principal market for the product of the North-West Territories creameries, but during the seasons of 1899 and 1900 some difficulty was experienced in disposing of all the butter at satisfactory prices. In both 1901 and 1902 it was found necessary to ship several carloads to Montreal for export to Great Britain. The returns from these shipments, after deducting freight, &c., were rather low and disappointing.

There has been a good market in the Yukon for a considerable quantity of specially packed, first-class butter, but this trade went to the United States for several years because certain Canadian dealers filled their orders, when the country was first opened, with a very inferior article. The reputation of Canadian butter became so bad in consequence that it was found impossible to make any sales for Yukon shipment, except what was supplied to the North-West Mounted Police, until the season of 1903, when orders were secured for 90,000 pounds. The shipments have been doubled during the past season, and the assurance is given that if the quality and style of packing are maintained up to the standard of the past two seasons' supply there will be no difficulty in securing the whole of the trade, which amounts to over half a million pounds annually. The butter for the Yukon trade is mostly put up in tins, and must be first-class in every particular, and packed in strong cases to stand the exceedingly heavy handling which it must undergo during the several transhipments.

Shipments to the Orient.

For several years past a small quantity of butter has been sold annually from the North-West creameries for shipment to the Orient, but during 1903 and 1904 (since the Osaka Exhibition), these shipments have been increased in amount over ten times, and our customers inform us that when the war is over we may look for further increases in their orders. The bulk of the oriental shipments goes to Japan, and, while the total importation of butter into Japan is not large, it is claimed that the demand is likely to grow very considerable in the future."

VII.—SUMMARY of the Business done at the various Stations throughout the Territories, under the Management of the Dominion Government, for the Seasons 1898 to 1904 inclusive.

NAME OF STATION	No. of patrons	Inches of cream supplied	Lbs. of butter manufactured	Average price realised at creamery	Mfrg charge per pound	No. of days in operation	Gross value of product
							Cts.
Blackfalds . .	1903	63	29,541·8	35,981	19·29	4	119 \$6,941 55
	1904	84	32,384·4	40,048	20·50	4	181 8,212 39
Calgary	1898	59	15,627	19,389	20·25	4	168 3,926 70
	1899	43	24,806·7	24,677	21·56	4	174 5,319 47
Calgary	1900	65	31,624·2	34,099	20·20	4	178 6,893 20
	1901	64	27,427·6	28,178	19·28	4	163 5,435 20
Calgary	1902	41	16,981	19,162	23·89	4	184 4,578 48
	1903	58	30,482·1	33,286	20·05	4	184 6,675 14
Calgary	1904	20	12,450·5	14,018	20·90	4	179 2,930 31
Churchbridge	1898	70	21,429	22,223	18·85	4	111 4,189 21
	1899	84	29,739·6	31,674	20·19	4	167 6,396 77
Churchbridge	1900	127	61,909·7	65,325	20·02	4	188 13,084 80
	1901	233	107,427·5	121,419	19·14	4	202 23,239 68
Churchbridge	1902	264	98,105·1	116,630	18·51	4	198 21,589 88
	1903	189	89,584·9	110,286	19·51	4	195 21,530 04
Churchbridge	1904	202	98,848·9	119,979	20·85	4	180 25,022 70
Edmonton	1898	48	12,346	17,068	18·80	4	156 3,209 19
	1899	49	14,149·9	17,322	20·96	4	160 3,631 56
Edmonton	1900	51	18,693·7	17,089	20·60	4	168 3,520 61
	1901	59	17,210·9	16,508	20·00	4	153 3,302 29
Edmonton	1902	37	13,012·8	14,217	19·93	4	143 2,833 92
	1903	51	14,557·0	16,348	19·76	4	122 3,231 40
Edmonton	1904	27	9,128·7	11,738	20·50	4	122 2,410 92
Grenfell	1898	77	35,179	42,838	19·04	4	149 8,156 47
	1899	71	32,204·4	39,154	20·28	4	152 7,943 02
Grenfell	1900	83	42,031·9	49,817	20·00	4	173 9,963 78
	1901	89	43,907·1	53,119	19·12	4	159 10,159 93
Grenfell	1902	68	26,915·2	33,505	18·16	4	146 6,108 25
	1903	52	17,390·1	21,875	19·96	4	135 4,368 48
Grenfell	1904	.....	.....	.....	.....	.....	.....
Innisfail	1898	105	39,003	57,717	20·40	4	184 11,775 55
	1899	156	68,924·8	86,040	20·69	4	184 17,805 53
Innisfail	1900	130	84,429·2	89,402	20·05	4	184 17,926 15
	1901	131	83,588·3	90,484	19·16	4	184 17,338 49
Innisfail	1902	118	90,329·6	99,245	20·86	4	184 20,709 49
	1903	180	118,428·5	141,372	19·34	4	184 27,338 41
Innisfail	1904	193	126,223·2	158,719	20·64	4	181 32,774 11
Lacombe	1903	51	10,831·6	14,138	19·31	4	98 2,730 10
	1904	54	19,200·9	22,587	20·44	4	181 4,617 51
Maple Creek	1898	15	11,621	12,362	20·06	4	158 2,479 99
	1899	12	7,283·8	7,921	21·41	4	128 1,696 56
Maple Creek	1900	15	8,265·8	8,806	22·22	4	151 1,956 68
	1901	10	5,035·8	5,792	20·83	4	111 1,206 98
Maple Creek	1902	.....	.....	.....	.....	.....	.....
	1903	.....	.....	.....	.....	.....	.....
Maple Creek	1904	.....	.....	.....	.....	.....	.....

SUMMARY of the Business done at the various Stations throughout the Territories under the Management of the Dominion Government, for the Seasons 1898 to 1904 inclusive.—*Continued.*

NAME OF STATION	No. of patrons	Inches of cream supplied	Lbs. of butter manufactured	Average price realised at creamery	Mfg charge per pound	No. of days in operation	Gross value of product
Moose Jaw . .	1898	39	31,580	37,999	Cts. 20·00	4 179	\$7,603 53
	1899	34	27,974·7	34,915	20·48	4 191	7,152 62
	1900	31	24,826·9	32,285	21·50	4 195	6,943 86
	1901	24	15,542·1	20,500	20·19	4 182	4,140 21
	1902	14	13,244·8	16,741	20·70	4 185	3,466 28
	1903	11	5,446·7	6,953	21·94	4 145	1,526 02
	1904	...	...	...	...	...	...
Moosomin . .	1898	47	14,567	14,523	18·55	4 134	2,695 28
	1899	40	7,725·6	8,461	20·67	4 118	1,748 34
	1900	67	22,836·5	24,296	20·23	4 152	4,912 62
	1901	122	40,283·0	42,831	19·15	4 156	8,205 04
	1902	38	9,926·9	11,843	17·87	4 136	2,116 85
	1903	40	11,935·6	14,347	19·82	4 130	2,845 40
	1904	48	15,231·5	17,905	20·24	4 110	3,625 44
Olds	1898	...	...	...	...	...	...
	1899	...	...	...	...	...	...
	1900	31	11,597·6	11,007	20·00	4 93	2,201 70
	1901	30	22,195·5	22,166	19·11	4 169	4,236 98
	1902	49	38,892·1	42,637	20·73	4 217	8,841 31
	1903	79	53,879·3	65,904	19·27	4 184	12,714 40
	1904	58	38,850·1	48,388	20·57	4 181	9,956 80
Prince Albert . .	1898	31	10,717	12,644	18·51	4 143	2,340 64
	1899	22	10,366·5	13,758	20·44	4 136	2,812 54
	1900	38	14,146·9	18,792	20·26	4 139	3,808 90
	1901	40	11,763·0	16,223	19·50	4 118	3,164 09
	1902	35	11,269·5	14,527	18·91	4 96	2,748 28
	1903	28	6,282·6	8,354	20·23	4 86	1,690 46
	1904	...	...	...	...	...	...
Qu'Appelle . .	1898	66	26,713	26,188	18·70	4 150	4,898 22
	1899	45	17,158·1	16,561	20·22	4 148	3,348 45
	1900	57	23,974·7	24,467	20·16	4 190	4,969 05
	1901	62	24,879·6	28,070	19·33	4 200	5,431 60
	1902	63	18,120·6	20,889	18·77	4 185	3,923 34
	1903	42	10,905·5	12,794	20·63	4 181	2,640 72
	1904	49	15,162·3	17,679	22·05	4 186	3,899 63
Red Deer . . .	1898	76	28,253	42,878	19·84	4 184	8,507 54
	1899	110	46,676	62,142	20·87	4 184	12,968 23
	1900	92	49,475	63,887	20·24	4 182	12,933 18
	1901	111	47,665·2	60,450	19·16	4 188	11,583 12
	1902	83	43,481·4	55,091	20·54	4 184	11,320 28
	1903	179	63,689·9	80,546	20·37	4 184	16,410 21
	1904	98	58,973·1	74,447	20·63	4 181	15,365 16
Regina . . .	1898	49	24,301	25,450	19·05	4 157	4,849 26
	1899	47	21,181·9	23,051	20·04	4 160	4,615 33
	1900	49	24,267·8	24,645	20·18	4 182	4,973 95
	1901	77	32,563·6	34,601	19·43	4 187	6,724 41
	1902	63	24,327·7	25,952	18·82	4 180	4,884 44
	1903	15	6,532·5	7,241	21·69	4 152	1,572 22
	1904	...	...	...	...	...	...

SUMMARY of the Business done at the various Stations throughout the Territories under the Management of the Dominion Government, for the Seasons 1898 to 1904 inclusive.—*Continued.*

NAME OF STATION	No. of patrons	Inches of cream supplied	Lbs. of butter manufactured	Average price realised at creamery	Mfrg charge per pound	No. of days in operation	Gross value of product	
			Cts.	Cts.				
Saltcoats . . .	1898	76	21,343	18,779	18·15	4	139	3,409 85
	1899	45	13,898·3	13,190	20·07	4	139	2,647 58
	1900	53	19,771·5	18,650	20·09	4	156	3,747 34
	1901	53	16,618·9	15,117	19·21	4	153	2,904 37
	1902	32	6,633·9	6,490	17·99	4	109	1,167 78
	1903	37	9,569·8	9,866	19·77	4	132	1,951 32
Saskatoon . . .	1904	27	4,046·8	4,501	19·87	4	150	894 36
	1898	18	8,631	10,202	18·92	4	153	1,930 49
	1899	13	7,929·1	9,197	20·49	4	146	1,884 46
	1900	10	8,411·5	10,398	20·14	4	161	2,094 97
	1901	8	4,437·1	4,372	19·35	4	137	846 18
	1902	...	...	...	...	...	...
Tindastoll . . .	1903	...	...	...	...	...	...
	1904	...	...	...	...	...	...
	1898	...	...	...	...	...	...
	1899	66	6,350·2	14,655	21·78	4	112	3,192 51
	1900	75	37,374·1	45,770	20·04	4	184	9,173 08
	1901	41	28,235·8	31,527	19·15	4	184	6,037 87
Tantallon . . .	1902	61	42,052·5	48,086	20·74	4	172	9,977 71
	1903	74	46,639·2	51,169	19·28	4	184	9,864 96
	1904	57	36,368·0	43,725	20·50	4	181	8,967 39
	1904	16	511·3	449	20·60	4	14	92 51
Wetaskiwin . . .	1898	58	8,576	27,136	20·08	4	192	5,449 65
	1899	71	14,815·4	32,350	20·99	4	184	6,789 29
	1900	66	16,384·1	33,770	20·01	4	184	6,787 70
	1901	27	7,918·1	12,185	19·17	4	160	2,338 10
	1902	...	...	...	...	...	...
	1903	32	15,447·1	18,667	19·32	4	152	3,610 63
Whitewood . . .	1904	9	2,242·8	2,501	21·22	4	63	530 75
	1898	85	41,271	44,308	19·07	4	166	8,450 52
	1899	89	30,276·5	42,284	20·07	4	175	8,485 70
	1900	68	32,892·4	37,038	20·07	4	183	7,434 50
	1901	76	30,848	33,700	19·14	4	150	6,470 68
	1902	37	6,272·5	6,982	18·39	4	121	1,291 11
Yorkton . . .	1903	50	11,899·4	13,940	19·28	4	125	2,694 97
	1898	91	38,961	35,413	18·26	4	137	6,466 61
	1899	50	18,680	17,491	20·21	4	143	3,535 19
	1900	61	27,075·5	27,329	20·00	4	165	5,468 71
	1901	88	33,410	35,151	19·31	4	146	6,718 38
	1902	11	430·3	390	18·81	4	25	73 36
The Territories . . .	1903	...	...	...	...	...	...
	1904	...	...	...	...	...	...
	1898	1,051	396,606	484,948	19·22	4	.....	93,740 67
	1899	1,072	407,095·8	501,907	20·70	4	.....	103,492 32
	1900	1,169	560,989	637,052	20·32	4	.....	128,794 78
	1901	1,345	600,957·1	672,393	19·40	4	.....	129,483 60
	1902	1,014	449,998·9	532,477	19·64	4	.....	104,630 76
	1903	1,211	553,243·6	663,066	19·66	4	.....	130,336 43
	1904	942	469,622·5	576,704	20·67	4	.....	119,299 98

STOCK INSPECTION.

The usual statement is given below showing the details of the inspection of cattle and horse shipments as well as a comparative statement giving the figures for previous years.

VIII.—STOCK Shipments.—Comparative Statements, 1904.

DISTRICTS	EXPORTS				LOCAL SHIPMENTS				Total	
	East		West		Cattle		Horses			
	Cattle	Horses	Cattle	Horses	Stockers to Range	Others	—	—	Cattle	Horses
East Assiniboia	1901	6,611	73	82	4,375	262	18	11,333	91	
	1902	9,117	201	305	4,300	158	27	13,880	228	
	1903	3,850	22	—	3,704	24	5	9,639	27	
	1904	4,007	89	—	602	148	4	4,757	93	
West Assinib'ia	1901	9,322	527	227	8	4,148	1,292	900	14,989	1,435
	1902	17,158	868	280	15	2,344	2,824	3,703	22,606	4,586
	1903	6,168	1,458	3	25	3,032	2,671	4,648	11,874	6,131
	1904	9,640	1,247	58	29	127	879	1,895	10,704	3,171
North Alberta	1901	36	21	1,254	8	1,129	1,083	8	3,502	37
	1902	465	77	1,473	11	740	2,334	96	5,012	184
	1903	1,215	14	923	75	1,100	3,066	326	6,304	415
	1904	734	37	999	22	445	2,624	151	4,802	210
South Alberta	1901	13,631	3,518	6,627	297	3,046	844	1,655	24,148	5,470
	1902	21,557	3,270	7,505	418	475	4,273	3,874	33,809	7,562
	1903	16,937	3,148	6,447	353	2,908	5,176	6,015	31,468	8,516
	1904	25,631	1,446	8,093	402	1,260	10,114	3,090	45,098	4,938
Saskatchewan	1901	1,973	—	—	—	1,517	—	—	3,490	—
	1902	2,193	—	—	—	1,092	2,940	—	5,425	—
	1903	1,183	16	—	—	758	146	—	2,087	16
	1904	226	4	—	—	224	26	11	476	15
The Territories	1901	31,573	4,130	8,190	313	14,218	3,481	2,581	57,462	7,033
	1902	50,490	4,416	9,568	444	8,951	9,883	7,700	78,887	12,560
	1903	31,462	4,658	7,373	453	11,502	11,083	10,994	61,420	16,105
	1904	40,238	2,823	9,150	453	2,658	13,791	5,151	65,837	8,427

DEPARTMENT OF AGRICULTURE

STOCK Statistics for Assiniboia, 1904.

SHIPPING POINTS	INSPECTORS	EXPORTS				LOCAL SHIPMENTS		
		East		West		Cattle		Horses
		Cattle	Horses	Cattle	Horses	Stock ers to Range	Others	
WEST ASSINIBOIA:								
Dundurn	L. Carson	79	..	..	..	5	36	..
Maple Creek	W. A. Douglas ..	810	22	52	..	..	..	20
Medicine Hat	J. H. G. Bray ..	6,917	892	6	29	5	843	1,230
Moose Jaw	D. Y. McNair ..	59	..	..	..	117	..	..
Lumsden	A. J. Balfour ..	..	..	..	..	..	..	..
Regina	S. F. Callender ..	..	..	..	..	..	..	..
Swift Current	W. Milburn ..	1,775	333	..	..	..	..	645
Total for West	Assiniboia	9,640	1,247	58	29	127	879	1,895
EAST ASSINIBOIA:								
Fleming	L. Galbraith	27	..	..	..	..	34	..
Moosomin	A. Gogson	23	..	..	..	106	..	..
Wapella	G. H. Morrison ..	31	..	..	..	..	35	..
Whitewood	W. Gemmell ..	51	..	..	..	..	..	..
Broadview	J. Brennan ..	..	..	..	..	..	..	..
Grenfell	J. Walker ..	..	..	..	..	231	..	..
Wolseley	G. H. Hurlburt ..	..	..	..	..	..	..	..
Qu'Appelle	A. Matheson ..	417	..	..	..	265	79	..
Balgomie	J. R. Agar ..	..	..	..	..	..	..	..
Churchbridge	B. D. Westman ..	..	..	..	..	..	..	..
Langenburg	C. M. Langer ..	218	86	..	..	..	..	..
Saltecoats	J. E. Littlehales ..	485	..	..	..	..	..	..
Yorkton	T. V. Simpson ..	2,314	..	..	..	..	..	..
Manor	W. G. Davis ..	341	..	..	..	..	..	..
Arcola	J. G. Hopper ..	100	..	..	..	..	..	..
Oxbow	H. Paine ..	..	..	..	..	..	..	..
Alameda	A. R. Hopper ..	..	..	..	..	..	..	..
Estevan	J. Ellis ..	..	..	..	..	..	..	..
Weyburn	W. H. Hunt ..	..	3	..	..	..	..	4
Total for East	Assiniboia	4,007	89	..	..	602	148	4

STOCK Statistics for Alberta, 1904.

SHIPPING POINTS	INSPECTORS	EXPORTS				LOCAL SHIPMENTS		
		East		West		Cattle		Stock- ers to Range
		Cattle	Horses	Cattle	Horses	Cattle	Horses	
NORTH ALBERTA :								
Carstairs	R. Scott	409	..	70	..	246	60	...
Olds	W. Dean . . . . .	..	..	..	..	..	..	..
Innisfail	M. Rogers	17	..	39	15	1	455	13
Red Deer	A. B. Nash . . . . .	..	..	162	..	..	263	1
Lacourbe	J. N. Burdick	178	16	726	5	..	794	58
Ponoka	A. Reid	112	..	..	..	..	79	7
Wetaskiwin	J. E. Miquelon . . . . .	..	..	..	..	444	74	9
Leduc	J. S. Johnston . . . . .	..	..	..	..	..	314	..
Strathcona	A. C. Murphy	18	21	2	2	..	399	3
Edmonton	W. Howey . . . . .	..	..	..	..	..	..	..
Total for North	Alberta	734	37	999	22	445	2,624	151
SOUTH ALBERTA :								
Coutts	H. Tennant	1,684	..	..	..	..	409	..
Calgary	R. Janes	3,148	601	4,184	197	213	762	624
Cochrane	W. B. Elliott	1,206	3	326	2	..	49	80
Claresholm	C. Sharples	4,058	23	412	..	..	312	53
Gleichen	J. Marshall	1,984	32	..	..	..	296	79
High River	D. E. Riley	5,584	39	1,874	24	1	2,835	329
Lethbridge	T. Scott	2,523	270	..	..	47	2,917	746
Morley	F. Ricks . . . . .	..	18	..	..	18	28	37
Macleod	R. G. Matthews	3,888	245	994	135	22	849	764
Nanton	H. M. Shaw	38	35	..	..	..	..	20
Okotoks	J. Paterson	134	59	172	5	11	360	56
Pincher Creek	J. Herron	1,384	121	131	39	948	1,297	302
Total for South	Alberta	25,631	1,446	8,093	402	1,260	10,114	3,090

STOCK Statistics for Saskatchewan, 1904.

SHIPPING POINTS	INSPECTORS	EXPORTS				LOCAL SHIPMENTS		
		East		West		Cattle		Stock- ers to Range
		Cattle	Horses	Cattle	Horses	Cattle	Horses	
Duck Lake.								
Duck Lake.	W. J. Campbell . . . . .	..	..	..	..	..	..	..
Prince Albert	Wm. Plaxton	132	..	..	..	224	8	..
Rosthern	J. H. Klaasen . . . . .	..	..	..	..	..	18	..
Saskatoon	J. Art	94	4	..	..	..	..	11
Total . . . . .	..	226	4	..	..	224	26	11

SHEEP.

About 20,000 sheep were imported into the Territories last year. The headquarters of the sheep raising industry would now appear to be Southern Alberta, where there is promise of considerable development. In other districts the number of sheep seems to be on the decrease. No exact statistics are available. Coyotes continue to cause considerable trouble and loss in some districts.

As already indicated in previous reports the successful handling of sheep in the eastern portion of the Territories would be best attained by pasturing small flocks in fenced coyote proof enclosures and growing forage crops for their sustenance. A series of very interesting investigations concerning coyote proof fencing has lately been undertaken by the Biological Survey of the United States Department of Agriculture, the results of which have been embodied in a bulletin. The conclusion reached is that a fencee constructed of woven wire with a triangular mesh not over six inches across and of a height of 28 to 42 inches supplemented by two or three lightly stretched barbed wires, would prove to be coyote proof.

For further particulars as to matters affecting the sheep industry of the Territories during the past year, the reader is referred to the report of the secretary of the Territorial Sheep Breeders' Association (Appendix C). No disease of an infectious or contagious nature among sheep was reported to the authorities during the year and the losses from abortion were inconsiderable.

Summary of District Reports.

Eastern Assiniboia—Owing to the ravages of the coyote or prairie wolf farmers in this district are giving up sheep breeding. The weather was generally favourable for lambing. In only two flocks was there any sign of disease. In one case fifty per cent. of a small flock died from an unknown cause and in the other the ewes suffered from fever after lambing. A few breeders complain of losses from low condition due to poor feed, but the general health was good. Leicester and Shropshire blood predominates, the majority of the rams in use being of the same breeds with a few Cotswolds. The prices received for wool were good and ranged from $6\frac{1}{2}$ to 14 cents which is considerably higher than last year. The average weight of the fleece was 8 lbs., ranging from 4 to 12 lbs.

Western Assiniboia—The increase for the past season was very good, in some instances reaching 100 per cent. more than the preceding year. There was a slight snowstorm in some parts towards the middle of May, but the weather was generally considered favourable for lambing. Very few reports of abortion were received. Heavy losses were reported from the Willow Bunch district owing to the hay and range being burned in the fall; one breeder alone lost a flock of 1,700. Coyotes were more than usual in evidence with the result that more sheep were destroyed. A few breeders report slight losses from tapeworm, while foot and mouth rot also appeared in isolated flocks. The flocks are mostly of obscure breeding, the majority being Merino and Oxford. The Merino breed of rams imported from Montana and the Oxfords from Ontario. The weight of fleece shorn averaged nearly 6 lbs., varying on

different ranches from $4\frac{1}{2}$ to $7\frac{1}{2}$ lbs. Excellent prices, which show a steady advance, were received, ranging from 10 cents to $14\frac{1}{2}$ cents and averaging over 13 cents.

Northern Alberta—The number of sheep reared in this district is on the decrease. The difficulty of protecting sheep from coyotes is still felt, and some are giving up sheep raising on that account. The weather was considered very good for lambing and very few losses were reported from disease. The flocks are mostly headed by Shropshires, but here and there an Oxford or Leicester is used. The fleece was slightly heavier than 1903, ranging from $3\frac{1}{2}$ to 10 lbs., and averaging 7 lbs. Prices were higher, the lowest being 6 $\frac{1}{2}$ cents, the highest $12\frac{1}{2}$ cents, and the average 9 cents.

Southern Alberta—A very large increase is reported from this district where the sheep are handled in large flocks. The weather was unusually favourable for lambing and the general health of the sheep was good. No considerable losses were reported but a few died from spear grass, foot rot, water on the brain and swollen jaws. Flocks are mostly of the Merino derivation, Oxfords and Cotswolds being used on them. The highest average of fleece was $14\frac{1}{2}$ lbs. from pure bred Rambouillet, but the general average was 7 lbs. The price received for the clip was exceptionally good, the highest being $14\frac{1}{2}$ cents and the average 13 cents.

Saskatchewan—Sheep breeding is not carried on extensively in this district and there is very little data on which to report. The increases compare very favourably with the preceding year. A few losses are reported from wolves and coyotes, but none from disease. Owing to losses from wolves some have given up sheep raising, but these have been more than counterbalanced by new breeders. The flocks are of mixed breeding with Shropshire and Merino rams imported from Ontario and Dakota. The average fleece was 8 lbs. and the price varied from 6 cents to 10 cents, averaging 8 cents.

SWINE.

There is possibly no better object lesson for the swine breeders of the Territories than the statistics given below showing the importation into Western Canada of pork, bacon and hams from the United States. There is something very far wrong with our methods and market conditions when we send to a foreign country some half million dollars a year for a product which can be grown successfully, easily and cheaply in the Territories. There are unfortunately no statistics available as to the actual number of swine in the Territories, but there is no doubt that there has been a great increase in the number of animals within the last year or two. To such an extent has this been the case that the local demands for hog products is now very largely in the hands of our own butchers and packers, the large Winnipeg packing houses turning out articles which compare favourably as to quality with those supplied by American firms. Western packers

have also captured a large share of the British Columbia (Kootenay trade). Unfortunately nearly the whole of the northern trade which is large and important is practically in the hands of the large American packers, and enquiries made of some of the more important firms trading in the north elicits the information that they are forced to purchase American goods owing to the inferior keeping qualities of the Canadian packed article. If this is the case surely a remedy should be quickly and effectually applied and this important outlet for our hog products be made available to our farmers. There was no contagious or infectious disease among swine during the year.

IX.—QUANTITY and Value of Hog Products imported into Western Canada from the United States.

DEPARTMENT OF AGRICULTURE

X.—PORK Prices for Years 1901, 1902, 1903 and 1904.

MONTH	WINNIPEG							
	LIVE				DRESSED			
	1901	1902	1903	1904	1901	1902	1903	1904
per	per	per	per	per	per	per	per	per
January.....	\$5.12	\$6.50	\$6.25	\$5.00	\$6.25	\$8.00	\$7.50	\$6.00
February.....	5.25	6.75	"	"	6.41	"	"	"
March.....	5.37	6.00	6.00	"	6.75	7.50	"	"
April.....	5.25	"	"	"	"	"	"	"
May.....	5.68	6.25	6.25	"	7.50	7.75	"	"
June.....	5.87	6.50	"	"	8.25	8.00	"	"
July.....	6.00	6.25	6.00	4.75	"	7.75	"	"
August.....	6.37	7.00	"	"	9.00	8.75	"	"
September.....	6.68	"	6.25	"	9.41	"	"	"
October.....	6.87	"	6.00	5.00	9.00	"	7.00	"
November.....	6.25	6.75	5.50	5.25	8.62 $\frac{1}{2}$	8.25	"	6.00
December.....	6.37	6.25	5.00	5.00	7.37 $\frac{1}{2}$	8.00	"	6.25
Average price for each year	\$5.92 $\frac{1}{4}$	\$6.52	\$5.97	\$4.95	\$7.79	\$8.25	\$7.25	\$6.12 $\frac{1}{4}$

MONTH	EDMONTON							
	LIVE				DRESSED			
	1901	1902	1903	1904	1901	1902	1903	1904
per	per	per	per	per	per	per	per	per
January.....	\$4.50	\$4.75	\$4.75	\$4.00	\$5.75	\$5.75	"	"
February.....	4.41	4.50	"	4.25	"	"	"	"
March.....	4.62	"	"	4.12 $\frac{1}{2}$	"	"	"	"
April.....	4.75	4.75	"	4.75	"	"	"	"
May.....	5.06	"	5.37 $\frac{1}{2}$	4.87 $\frac{1}{2}$	"	"	"	"
June.....	5.00	"	5.75	4.75	"	"	"	"
July.....	"	"	"	4.12 $\frac{1}{2}$	"	"	"	"
August.....	5.18	"	"	4.25	"	"	"	"
September.....	5.41	5.25	5.87 $\frac{1}{2}$	"	6.25	6.25	"	"
October.....	"	"	6.37 $\frac{1}{2}$	4.62 $\frac{1}{2}$	"	"	"	"
November.....	5.50	"	5.50	4.50	"	"	"	"
December.....	"	4.75	4.25	3.75	5.50	5.75	"	"
Average price for each year	\$5.02	\$4.83 $\frac{1}{4}$	\$5.31	\$4.35	\$7.52	\$7.54 $\frac{1}{4}$	"	"

IMPROVEMENT OF SWINE.

During the summer the Department had under consideration the desirability of continuing its policy of distributing purebred swine by means of auction sales and with a view to ascertaining to what extent such sales, if held during the fall, would be taken advantage of circular letters were addressed to breeders, officers of Agricultural Societies, Members of the Legislative Assembly and purchasers of swine at previous Government sales. The replies received were encouraging, and arrangements were made accordingly. It was decided to purchase only Territorial bred pigs, and this action was subsequently justified by the quality of the animals secured. The following information was embodied in a circular sent to breeders :

"In order to encourage the breeding of pure bred swine, the Department has again decided to buy, this fall, a carload or more of boar and sow pigs of the Yorkshire, Berkshire and Tamworth breeds. The class of pigs that will be purchased is well-grown animals of spring litters. They must not only be well grown but of standard type and correct conformation. No culs will be taken. It is not necessary that the pigs be registered, but they must be eligible for registration, i.e., their sire and dam must be recorded. Sellers must also furnish an entry form properly filled out as required by the Dominion Swine Breeders' Record, for each pig sold. Blank entry forms can be secured from Henry Wade, Live Stock Registrar, Parliament Buildings, Toronto, Ont. These pigs will be wanted about the middle of October, but before this an Agent of the Department will inspect the pigs and select which ones will be accepted. The Department will pay, for sow pigs, 9 cents a pound, live weight, for the first 125 lbs.; 8 cents for the next 25 lbs.; and animals weighing over 150 lbs. will be taken if of proper conformation, but in no case will more than \$14 be paid for any one animal. For Boar Pigs:—Last fall the Department received far too many boars. Not so many will be taken this year, therefore it is advisable to cull the hogs vigorously and save only the best. Price: Same as for sow pigs. All boars must be crated. If you have any pigs, as described above, for sale and you are willing to dispose of them on the above terms, kindly fill in the attached form and return it at once to the Department."

All arrangements connected with the inspection, purchase and sales were placed in the hands of Mr. George Harcourt, B.S.A., Superintendent of Fairs and Institutes, whose report is herewith subjoined. The Canadian Pacific Railway Company assisted the Department by means of a special rate for handling the cars. As the requirements of the country in the matter of pure bred swine appear to be now fairly well met I would recommend that no further sales be held for some time.

Report of Swine Sales by Mr. George Harcourt, B.S.A.

The work of inspecting the pigs offered the Department last year proved that the sellers as a rule wished to dispose of only good pigs. In view of this the work of inspection this year was not begun until a short time before the pigs were wanted. In reply to the circular sent to all breeders of pigs it was found that about 300 animals were offered. Some of these, however, were too young, being only a few weeks old, others were over one year, and some were aged boars, which the Department was asked to take in exchange for younger animals. All these were rejected—the young ones because too young to handle in a car, and the aged boars because they would occupy too much room, besides being liable to be more or less uncertain as breeders and dangerous to handle. Most of the pigs were well grown and well nourished. A few were well enough grown but rather thin. If of good type these were taken as being bought by weight. They really made a cheaper animal to sell than if heavier. It was not fat or flesh that was looked for as much as a good frame. A number of animals were rejected because they were not well enough grown. They were early litters and had evidently been stunted at some time. There was no attempt this time to overload animals with flesh, as profiting by the experience of last year only 9c per pound live weight was paid for the first 125 lbs. then 8c per pound for the next 25 lbs. and the limit that would be paid for any pig was \$14. This did away with very large pigs. On the whole the nicest lot of pigs secured came from The Regina Stock Farm, Regina. They were an even, well grown bunch that carried well on the car and possessed a style about them which made them favourite sellers. Yorkshires were again offered the Department in largest numbers. Last year there was a good demand for Berkshires hence an effort was made to secure as many

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of this breed as possible with the result that the proportion of them in the shipment was largely increased. It was found that while a few head were offered from the Prince Albert and Estevan lines, the number was so small that it was not advisable to try to collect. In all 185 head were purchased, being taken from 26 breeders scattered along the main line of the C.P.R. from Caron to Fleming. Those who had seen the lots of pigs handled by the Department in previous years declared that the bunch bred and raised in the Territories were as an all around lot superior to any of the other shipments. The following is a tabulated statement giving all particulars in regard to the purchases. The price paid for boar and sow pigs was 9c a pound for the first 125 lbs., 8c for the next 25 lbs., and the limit for larger pigs \$14.

STATEMENT of Swine Purchases, October, 1904.

NAME	ADDRESS	BREED	No. of Boars	No. of Sows	Total Value
Adamson, W. R.	Moosomin	Yorks.	6	8	\$159 40
Bartleman, A. T.	Wapella	Tamworth	4	14	219 70
Bredt, P. M.	Regina	Yorks.	1	3	56 00
Browne Bros.	Ellishoro	Berks.	1	.....	7 47
Bulstrode, G. G.	Qu'Appelle . . . . .	" . . . . .	.....	3	36 35
Crisp, A. P.	Moosomin	Yorks.	2	2	56 00
Dixon, Wm.	Grenfell	"	1	1	28 00
Frith, J. E.	Moosomin	"	2	4	54 90
Hans, W. V.	Caron	Berks.	4	.....	49 80
Hunt, Jno.	Wolseley	"	2	4	84 00
Miller, Jno.	Indian Head.	Yorks.	4	2	64 80
McDonald, D. C.	Grenfell	Berks.	4	3	84 75
McEwan, D.	Regina.	Yorks.	3	.....	38 00
McMullin, Jas.	Moosomin . . . . .	" . . . . .	.....	4	56 00
Pearce, J. H.	Condie . . . . .	" . . . . .	.....	4	36 00
Potter, A. B.	Whitewood.	"	4	6	127 90
Regina Stock Farm	Regina.	"	10	20	373 40
Skinner, F. T.	Katepwe. . . . .	" . . . . .	.....	3	42 00
Smith, A. B.	Moosomin	Berks	4	4	87 00
Smith, Ben.	Boharm	"	2	4	71 50
Smith, J. A.	Pheasant Forks.	"	2	6	105 20
Staples, W. L.	Grenfell.	Tamworth	2	3	42 30
Taylor, W. H.	Fleming	Berks	7	7	196 00
Vidal, J. F.	Katepwe . . . . .	" . . . . .	.....	4	56 00
Waines, Thos.	Moosomin	Yorks.	2	.....	28 00
Waters, Wm.	Caron	"	3	.....	27 00
Waters, Wm.	Caron	Tamworth	4	2	53 55
Total . . . . .	. . . . .	. . . . .	74	111	\$2,241 02

Sales Along the Main Line.

Believing that those who purchased at the previous swine sale along the main line of the C.P.R. might desire to secure a change of blood and that there would be others who might desire to take advantage of the opportunity to secure a start with pure bred animals, it was decided to send out a circular letter to ascertain whether if an opportunity of purchasing were given it would be taken advantage of to any extent. The replies were so favourable that it was decided to advertise a series of sales along the main line of the C.P.R. As the pigs were being bought along this line the car had to stop at most of these points in any event. The pigs purchased were taken in during the forenoon and the sale held

in the afternoon. In order to give purchasers choice of new blood the car was ordered for Moose Jaw where pigs were taken in, then more at Regina. From there the car proceeded to Moosomin for the first sale. The pigs offered for sale were a selection from those taken up at Moose Jaw and Regina. No pigs taken up at Moosomin were sold there. The same policy was followed at other places. Owing to the extra work in loading and selling the same day two reliable men were engaged to accompany the car to feed the animals and assist at sales. Sales were advertised for the following points:

Moosomin	Friday, November	4th.
Wapella.....	Saturday, "	5th
Whitewood	Monday, "	7th
Broadview	Tuesday, "	8th
Grenfell.....	Wednesday, "	9th
Wolseley.....	Thursday, "	10th
Indian Head.....	Friday, "	11th
Balgonia	Saturday, "	12th
Regina.....	Monday, "	14th
Moose Jaw.....	Tuesday, "	15th

The sales were conducted in the stock yards and commenced each day at one o'clock or as soon after as possible. Owing to the tardiness of buyers in attending it was always well on to two o'clock before the sale actually started. Mr. Wm. Dixon, of Hillesden, acted as auctioneer and commenced the terms of the sale as follows: "Purchasers must pay cash and take delivery of animal immediately after the sale. A low upset price, just sufficient to cover the purchase price and the cost of transportation placed on each animal. Only a limited number will be offered at each place."

The advertising posters stated that each purchaser would be required to sign an undertaking not to butcher, sell or otherwise dispose of the swine secured at the sales without permission in writing from the Department. When the sale was started the auctioneer announced that this condition would not be required. This was decided upon because the experience of previous years went to prove that it acted as an obstruction to free bidding, buyers being averse to purchasing anything over which anyone else has any control, and that it was of little practical value otherwise. An average lot was picked out for each sale so that there would be no culling and so that the last offered would be of as high a quality as the first, while the limit set for the whole number to be sold at any one point was seldom reached, that set for each breed was frequently reached. This was especially the case with Berkshires, the demand for them being keen at nearly all points. At Regina and Moose Jaw the limit was reached in all breeds, in fact, it was exceeded several times and more could have been sold. The bidding was quite spirited and the best average prices were obtained. At other places the bidding was somewhat disappointing and the number sold much smaller than was expected. The following table shows the number sold at each point and the average price obtained:

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STATEMENT of Sales, Eastern Assiniboia.

PLACE OF SALE	Number sold						Total	Average price	Amount realised	Number of individual purchasers				
	Yorks		Berks.		Tams.									
	Boars	Sows	Boars	Sows	Boars	Sows								
Moosomin	1	2	2	.	.	.	5	\$11 80	\$59 00	5				
Wapella . . . . .	.	2	3	1	.	.	6	13 50	81 00	6			
Whitewood . . . . .	.	.	1	1	.	.	2	10 00	20 00	1		
Broadview . . . . .	.	.	.	1	.	.	1	15 00	15 00	1	
Grenfell	3	1	1	.	1	1	7	14 15	99 00	7				
Wolseley	1	2	1	1	.	.	5	14 55	72 75	2				
Indian Head . . . . .	.	1	2	2	1	.	6	14 00	83 50	6			
Balgonie . . . . .	.	.	1	2	.	.	3	13 66	41 00	2		
Regina	1	4	3	2	.	2	12	14 90	178 00	10				
Moose Jaw	3	3	1	2	.	1	10	17 40	174 00	9				

Sales on the Yorkton Line.

Owing to its closer connection with Manitoba it was felt that the farmers of the district tributary to the North-Western branch of the C.P.R. were not in as great need of assistance in the matter of procuring pure bred swine as other sections, consequently no shipments were sent into that district during the past year. The Department, however, has had the idea under consideration for some time, and from the nature of the information gathered from the district, was led to believe that it would be justified in sending a few pigs for sale on this line. Accordingly when the car was at Regina thirty-three head were selected, fairly representative of the different breeds, and placed in another car for shipment to this line. Mr. G. W. Wright, of the Department's staff, was in charge of the car, and his report is as follows:

Report of Swine Sales in Yorkton District, by G. W. Wright.

Taken on the whole the sales in this section of the country were not a success, and failed quite materially to come up to the expectations held by the Department. Two conditions may probably account for the lack of interest displayed in these sales. First, the splendid crop harvested in the district and the high prices obtained for the same, and, secondly, the low price of pork prevailing at that time. One remark frequently heard as to why people would not purchase was that the cost of feed was too high.

The car placed in my charge was dispatched to the North-Western branch of the C.P.R., and sales were advertised for the following points: Langenburg, Friday, November 18th; Churchbridge, Saturday, November 19th; Saltcoats, Monday, November 21st; Yorkton, Tuesday, November 22nd. The sales commenced at the same time, and the terms of sale were similar as those along the main line. The auctioneer, Mr. Dixon, who conducted the sales between Moosomin and Moose Jaw had charge of this part of the work. Fairly good prices were realised at Langenburg, but at Churchbridge not a single pig was sold. At Saltcoats the prices obtained were not so good, notwithstanding that more

were present than at the first sale. Having been unsuccessful in selling any of the pigs at Churchbridge a far greater number were left for the sales at Saltcoats and Yorkton. At Saltcoats the bidding was slow, and it was evident that unless better competition was to be had at Yorkton poor prices, to say nothing of having the greater portion left unsold, would result. Such proved to be the case, and only half of what was left over from Saltcoats could be sold by auction at Yorkton, the remainder being disposed of by private treaty to a farmer who offered a lump sum for them. This offer, although somewhat below their real value, was considered to be, under the circumstances, the best thing obtainable, and, acting under instructions received from the Department, was accepted.

The following is a summary of the sales at each point:

STATEMENT of Sales, North-Eastern Assiniboia.

PLACE OF SALE	Number sold						Total	Average price	Amount realised	Number of individual purchasers				
	Yorks.		Berks.		Tams.									
	Boars	Sows	Boars	Sows	Boars	Sows								
Langenburg ...	2	2	1	1	.	...	6	\$16 29	\$97 75	4		
Churchbridge.	...	...	...	...	...	...	...	...	...	...
Saltcoats	1	5	.	1	.	.	7	11 56	81 00	6				
Yorkton	5	2	3	4	2	4	20	9 60	192 00	7				

G. W. WRIGHT.

Sales in Western Assiniboia and Southern Alberta.

From Moose Jaw the original car proceeded west as far as Medicine Hat, then on the Crow's Nest Line to Lethbridge and Macleod, then to Calgary and north of that town. Sales were held at the following points:

Maple Creek	Thursday, November 17th
Medicine Hat	Saturday, " 19th
Lethbridge	Monday, " 21st
Macleod	Tuesday, " 22nd
Pincher	Wednesday, " 23rd
High River	Friday, " 25th
Crossfield	Monday, " 28th
Carstairs	Tuesday, " 29th
Didsbury	Wednesday, " 30th
Calgary	Thursday, December 1st

Mr. S. W. Paisley, of Lacombe, was engaged to sell the pigs at these sales, which he did in a manner satisfactory to the Department. These sales proved very disappointing. It was not expected that many would be sold at either Maple Creek or Medicine Hat, but it was thought well to give an opportunity to secure pure bred animals should anyone desire them. In Southern Alberta a dry season had reduced the amount of coarse grains and lessened the annual income of the farm, hence the bidding was not as brisk as was expected. The sales were held at a few points north of Calgary which were not covered by those of the previous

year. The sale at Maple Creek proved a failure, not an animal being sold. An unusually high wind prevailed at the time making travelling very unpleasant, and this may account for the very small attendance, though probably the real reason is that the ranchers are satisfied with ordinary stock as a source of supply for the needs of the ranch. High winds were still blowing at Medicine Hat and again at Lethbridge and Macleod. At Pincher Creek a heavy snow storm no doubt prevented intending buyers from being present.

STATEMENT of Sales in Western Assiniboia and Southern Alberta.

PLACE OF SALE	Number sold								Number of individual purchasers	
	Works.		Berks.		Tams.		Total	Average price	Amount realised	
	Boars	Sows	Boars	Sows	Boars	Sows				
Maple Creek . . . . .	..	..	..	..	..	..	..	..	..	..
Medicine Hat	1	..	1	1	..	..	3	\$10.00	\$30.00	1
Lethbridge . . . . .	..	..	..	..	..	..	..	..	..	..
Macleod	3	1	..	..	..	..	4	13.00	52.00	3
Pincher . . . . .	..	1	1	1	..	..	3	14.00	42.00	2
High River	3	2	2	3	..	..	10	7.55	75.50	6
Crossfield	2	6	1	2	1	1	13	10.48	136.25	7
Carstairs	5	6	1	4	1	2	19	9.20	174.00	8
Didsbury	3	6	..	6	..	..	15	9.80	147.00	9
Calgary	5	11	..	..	4	8	28	6.70	187.70	6

Owing to no pigs being sold at Maple Creek and Lethbridge and but few at Medicine Hat, Macleod and Pincher Creek, an unusually large number were left for the closing sales. These were got rid of at the best price obtainable under the circumstances and included a number of animals that had received slight injuries in the car.

I am pleased to report that not a single animal was lost on the trip, and though some of the pigs were on the car a full month, yet all continued to gain in weight and were in even better shape at the close of the trip than when they began. This was accomplished by having the car divided into pens and by unloading at each place so that all could have an opportunity to stretch their limbs by moving about. This meant considerable extra work but the results more than paid for the trouble. All crates were done away with as soon as possible and all the boars turned together into pens. There was a little fighting at first but they soon settled down with only an occasional scrap.

The weather throughout was very favourable to the sales. I had to leave before the sales were quite completed but my place was taken by Mr. T. N. Willing of the Department's staff, who saw the work completed and disposed of the car fittings.

GEO. HARCOURT.

BRANDS.

The number of brand transactions is well up to the figures of last year. This part of the Department's business shows no signs of falling off. There have been practically no complaints and there is nothing that calls for special remark in connection with this subject.

The following statement shows the transactions under The Brand Ordinance to the end of 1904.

Transfers.....	1899....	132				
	1900....	165				
	1901....	222				
	1902....	265				
	1903....	400				
	1904....	402				
Changes.....	1899....	...				
	1900....	27				
	1901 ...	20				
	1902....	26				
	1903....	43				
Searches and extracts.....	1904....	43				
	1899....	...				
	1900....	35				
	1901....	42				
	1902....	100				
	1903....	144				
	1904....	124				
Total number of brands reallocated.....—						3,228
Cattle brands.....	1898 ...	2,111				
	1899....	1,466				
	1900 ...	1,508				
	1901....	1,689				
	1902....	1,934				
	1903....	2,390				
Horse brands.....	1904....	2,034—13,112				
	1898....	941				
	1899....	821				
	1900....	886				
	1901....	947				
	1902....	1,234				
	1903....	1,390				
	1904 ...	1,846— 7,565				
Total brands on record up to 31st December, 1904..						23,925
Total transactions in 1898.....						6,280
“	“ 1899.....	2,419				
“	“ 1900.....	2,621				
“	“ 1901.....	2,920				
“	“ 1902.....	3,559				
“	“ 1903.....	4,367				
“	“ 1904.....	3,949 —26,115				

Brand Book.

Supplement No. 1 to the Brand Book of 1903 was published early in the year from manuscript prepared in the Department. This contained complete lists of brands allotted, transferred, changed and corrected during 1903. Manuscript for the 1904 supplement has also been prepared and this book will be issued shortly.

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ANIMALS RUNNING AT LARGE.

As will be seen from the statement given below there has been a very large increase in the amount derived from sales under the various Ordinances relating to stray stock. This is only a natural consequence of the filling up of the country and the extension of The Herd District. The usual statements are appended.

XI.—STATEMENT showing Sales of Animals Illegally Running at Large since the year 1886.

Year	Total Amount collected	(1) Revenue	(2) Refunds
1886—1896 Total for 10 years.....	\$ 79 85	\$ 79 85	.....
1896—1897.....	95 95	95 95	.....
1898—1899 (16 months Department organized).	356 95	324 00	\$ 32 95
1900	1,137 15	588 83	548 32
1901	789 53	581 97	207 56
1902	516 18	499 38	31 30
1903	1,088 79	963 04	125 75
1904	2,925 20	2,485 83	439 37

(1) This column shows actual revenue from lapsed proceeds of sales deposited to the credit of the General Revenue Fund.

(2) This column shows the amounts of proceeds of sales paid to the rightful owners of stock disposed of under The Estray, Entire Animals and Herd Ordinances.

XII.—SALES of Animals Impounded under The Herd Ordinance.

Poundkeeper	Location	Class of Animal	First Gazette notice	Date of Sale	Amt. in hands of dept.
Mahlon Bargger	SE 14-39-4w3	Bay mare, branded heart left shoulder and 7 over H on left hip.....	June 30, 1904	July 7, 1904	\$ 59 40
"	"	Black mare, aged, branded P over P on left shoulder.....	July 15, 1904	Aug. 1, 1904	.....
S. Beach	SW 34-16-20w2	Gray bull, 3 years old, unbranded.....	May 30, 1904	June 28, 1904	.....
D. Copeland	NE 10-17-26w2	Black horse colt, 4 years old, branded right angle on right flank.....	June 15, 1904	July 22, 1904	88 35
"	"	Sorrel horse, branded DD on left flank.....	"	"	103 00
"	"	Sorrel horse, branded FD on left shoulder.....	"	"	103 80
"	"	Dark bay horse, aged, unbranded.....	"	"	30 68
"	"	Dark bay mare, about 14 years old, branded O with bar over on left shoulder and bar or wire mark on left hip.....	July 15, 1904	Aug. 9, 1904	24 25
"	"	Steel gray horse colt.....	"	"	14 65
James Campbell	SE 22-17-28w2	Dark bay pony mare, indistinct brand on right hip.....	Nov. 15, 1904	Dec. 16, 1904	.....
Henry Wall	NE 10-13-3w3	Buckskin pony, about 7 years old, unbranded.....	June 15, 1904	July 20, 1904	9 90
G. W. Stephenson	NW 24-36-5w3	Buckskin pony, about 8 years old; gray pony 3 years old, branded AVF monogram; red heifer, 3 years old; red and white heifer.....	July 15, 1904	Aug. 6, 1904	30 65
"	"	Dark bay horse.....	Aug. 15, 1904	Sept. 12, 1904	57 00
Samuel Frayn	N ₁ 22-16w2	Red bull, unbranded.....	June 30, 1904	Aug. 8, 1904	.....
A. B. Smith	SW 24-13-33w1	Sorrel stallion, 3 years old.....	"	July 28, 1904	37 25
"	"	Light buckskin pony mare, 3 years old.....	June 15, 1904	July 13, 1904	64 50
John R. Gorden	SW 5-19-9w2	Light bay pony mare, about 5 years old, branded 4G on left shoulder and C on right shoulder.....	"	"	.....
E. A. Houghton	SW 16-2-31w1	Gray mare.....	June 30, 1904	July 21, 1904	43 20
D. McKaig	NE 22-18-10w2	Small red heifer.....	July 15, 1904	Aug. 27, 1904	5 15
"	"	Pony gelding, branded WS on left hip.....	July 31, 1904	Aug. 19, 1904	15 43
John Fahlman	22-15-17w2	Light roan mare, with foal.....	Oct. 15, 1904	Nov. 12, 1904	5 00
Alfred Hartung	NW 21-21-31w1	White boar; black boar.....	June 30, 1904	Aug. 19, 1904	.....
"	"	Gray horse.....	July 31, 1904	Aug. 27, 1904	11 80
		Bay mare, branded slanting bar with two horizontal bars through.....	Aug. 12, 1904	Sept. 13, 1904	121 90

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SALES of Animals Impounded under The Herd Ordinance—*Continued.*

Poundkeeper	Location	Class of animal	First Gazette notice	Date of sale	Amt. in hands of dept.
R. Johnston	SW 1-12-8w2, SW 8-45-16w3	Bay gelding, about 12 years old, branded Bay mare, branded C with dot in centre on right shoulder.....	Sept. 15, 1904 Oct. 15, 1904	Oct. 20, 1904 .. Sept. 14, 1904 ..	12 00 ..
F. W. Adams	SE 18-22-17w2	Gray gelding, branded ; yearling gelding ; pinto mare ; sucking colt.....	Aug. 15, 1904	Sept. 14, 1904 ..	.....
Albert E. Newberry	14-17-18w2	Gray yearling ; filly colt	Oct. 15, 1904	Nov. 12, 1904 ..	64 50 ..
John S. Lytle	SW 5-20-6w2	Broncho sorrel mare, branded ; broncho sorrel colt ; broncho brown mare, branded ; broncho gray mare, branded ; broncho brown mare, branded ; broncho dark brown mare, branded ; gelding, branded ; gray dapple mare, branded Oct. 15, 1904	July 31, 1904	Nov. 23, 1904 ..	113 00 ..
John G. Robinson	NE 12-4-6w2	Black mare, branded : sorrel horse, branded LK, on left shoulder.....	Oct. 15, 1904	Dec. 13, 1904 ..	24 40 ..
J. Gilbert	NW 34-16-18w2	Roan pony stallion, 2 years old, branded left shoulder	May 31, 1904	July 5, 1904 ..	.....
"	"	Bay gelding	Nov. 15, 1904	Dec. 13, 1904 ..	.....

XIII—SALES of Animals under The Stray Animals Ordinance.

Justice	Address	Class of animal	Date of capture	First Gazette notice	Date of sale	Net proceeds
A. C. Milne	Lacombe	Pinto mare, unbranded	July 10, 1903	July 15, 1903	March 2, 1904 ..	31 15 ..
C. N. Garson	Onion Lake	Bright sorrel filly, unbranded	June 15, 1903	Aug. 31, 1903	Feb. 6, 1904 ..	24 30 ..
J. Einarsson	Logberg	Dark bay pony mare, unbranded .....	.....	Dec. 31, 1902	Jan. 30, 1904 ..	15 80 ..
E. Bolton	Saltcoats	Bay mare, unbranded	Aug. 7, 1903	Aug. 31, 1903	April 2, 1904 ..	46 75 ..
G. F. Guernsey	Ft. Qu'Appelle	Small red cow, unbranded	July, 1903	Aug. 15, 1903	April 22, 1904 ..	17 63 ..
Percy B. Gregson	Blackfalds	Strawberry roan pony, branded	Oct. 11, 1903	Oct. 31, 1903	May 21, 1904 ..	3 66 ..
"	"	Bluish gray gelding, unbranded	Aug. 10, 1903	Aug. 31, 1903	May 21, 1904 ..	5 10 ..
John Fleming	Vegreville	Dark bay pony, unbranded	May, 1903	Dec. 15, 1903	May 13, 1904 ..	26 20 ..
T. G. Morrison	File Hills	Blue roan pony mare	July 31, 1903 ..	June 25, 1904 ..	26 00 ..	.....
John King	Whitewood	Roan muley steer. White and black steer .....	.....	Dec. 15, 1903 ..	June 15, 1904 ..	23 90 ..

A. E. Westbrook	Rouleau	Bay mare, branded A left law. Roan mare, branded W left hip.	Oct. 10, 1903 Jan. 11, 1904	Oct. 31, 1903 Jan. 31, 1904	June 17, 1904.. June 30, 1904	122.35 4.25
A. R. Colquhoun	Broadview	Heifer, unbranded	Dec. 21, 1903 April 1, 1903 Sept. 1, 1903	Dec. 31, 1903 Jan. 15, 1904	July 18, 1904.. July 12, 1904	15.70 .95
James Leslie	Saskatoon	Black and white steer.	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	July 18, 1904.. July 12, 1904	5.40
F. M. Rogers	Inniskill	Black and white heifer, three years old	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	July 18, 1904.. July 12, 1904	96.04
G. W. E. Hobme	Bruderheim	Red and white heifer, branded	Dec. 31, 1903 Jan. 15, 1904	Dec. 31, 1903 Jan. 15, 1904	July 18, 1904.. July 12, 1904	8.70
L. C. Frulmer	Red Deer	Sorrel mare, branded	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	July 18, 1904.. July 12, 1904	6.75
R. Ritchie	Strathcona	Bay mare, unbranded	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	July 18, 1904.. July 12, 1904	4.00
Thos. H. Garry	Willow Brook	Small buckskin colt.	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	Aug. 4, 1904.. June 24, 1904	96.04
"	"	Dark brown horse	Dec. 31, 1903 Jan. 15, 1904	Dec. 31, 1903 Jan. 15, 1904	Aug. 4, 1904.. Sept. 15, 1904	6.75
John Dixon	Maple Creek	Roan pinto mare, branded 60 on right shoulder. Roan pinto gelding branded	Dec. 31, 1903 Jan. 15, 1904	Dec. 31, 1903 Jan. 15, 1904	Aug. 20, 1904.. Aug. 31, 1904	38.45 55.45
J. W. Silverthorn	Olds.	Three steers	Dec. 31, 1903 Jan. 15, 1904	Dec. 31, 1903 Jan. 15, 1904	Aug. 20, 1904.. Aug. 31, 1904	28.53
C. L. Peterson	Didsbury	Red and white steer, branded	Dec. 31, 1903 Jan. 15, 1904	Dec. 31, 1903 Jan. 15, 1904	Aug. 20, 1904.. Aug. 31, 1904	28.53
"	"	FOL on left ribs	Dec. 31, 1903 Jan. 15, 1904	Dec. 31, 1903 Jan. 15, 1904	Aug. 20, 1904.. Aug. 31, 1904	28.53
C. H. Wade	Edmonton	Black mare, branded OK combination over wineglass on left shoulder	Dec. 31, 1903 Jan. 15, 1904	Dec. 31, 1903 Jan. 15, 1904	Aug. 20, 1904.. Aug. 31, 1904	28.53
J. Gibson	Craik	Red heifer, branded on left hip and shoulder	Dec. 31, 1903 Jan. 15, 1904	Dec. 31, 1903 Jan. 15, 1904	Aug. 20, 1904.. Aug. 31, 1904	28.53
I. Young Byers	Wetaskiwin	Bay pony gelding branded	Dec. 31, 1903 Jan. 15, 1904	Dec. 31, 1903 Jan. 15, 1904	Aug. 20, 1904.. Aug. 31, 1904	28.53
E. F. T. Brokowsky	Battleford	Bay mare, branded FH on left shoulder	Dec. 31, 1903 Jan. 15, 1904	Dec. 31, 1903 Jan. 15, 1904	Aug. 20, 1904.. Aug. 31, 1904	28.53
P. B. Anderson	Northern	Light roan ox, unbranded	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	Aug. 20, 1904.. Aug. 31, 1904	28.53
"	"	Two year old steer, unbranded	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	Aug. 20, 1904.. Aug. 31, 1904	28.53
J. Getty	Caron	Roan cow and calf, unbranded	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	Aug. 20, 1904.. Aug. 31, 1904	28.53
W. T. Warner	Fletwode	Buckskin pony, branded JJ on left hip	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	Aug. 20, 1904.. Aug. 31, 1904	28.53
P. Evans	Yorkton	Iron gray pony mare	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	Aug. 20, 1904.. Aug. 31, 1904	28.53
R. Cail	Cailmont	Roan pony	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	Aug. 20, 1904.. Aug. 31, 1904	28.53
J. W. Commodore	Roseview	Buckskin pony	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	Aug. 20, 1904.. Aug. 31, 1904	28.53
"	"	"	Dec. 31, 1903 Jan. 15, 1903	Dec. 31, 1903 Jan. 15, 1903	Aug. 20, 1904.. Aug. 31, 1904	28.53

DEPARTMENT OF AGRICULTURE

SALES of Animals under The Entire Animals Ordinance.

Justice	Address	Class of Animal	Date of Capture	First Gazette Notice	Date of Sale	Amt. in hands of dept.
C. B. Phillips	Asker	Stallion	April 23, 1904	May 14, 1904.	June 11, 1904.	\$25 12
"	"	Red yearling bull, branded on left shoulder.	May 24, 1904	June 15, 1904	July 18, 1904.	.....
R. C. MacDonnell	Macleod	Sorrel stallion, colt, unbranded .....	.....	June 30, 1904	June 30, 1904.	2 85
A. C. Hare	Earlsville	Black pony stallion, branded 4 on left shoulder.	.....	.....	.....	.....
D. Davidson	Spring Lake	Bay stallion, 3 years old, unbranded .....	.....	June 30, 1904	July 28, 1904	9 35
D. K. Morkenberg	Markerville	Dark gray stallion	May 10, 1904	Sept. 15, 1904	Oct. 29, 1904	27 20
W. Tulloch	Tulloch	Black bull, branded on right ribs and left hip .....	.....	Sept. 30, 1904	Nov. 5, 1904	2 25
John Fleming	Vegreville	Brown pony stallion	Sept. 25, 1904	Oct. 15, 1905	Dec. 14, 1904	1 85
T. G. Morrison	File Hills	Black stallion	Nov. 25, 1903	.....	Mar. 17, 1904	2 50
R. Ritchie	Strathcona	Dark iron gray or black stallion, 3 years old, unbranded	June 11, 1904	June 30, 1904	July 30, 1904	.....
" .....	" .....	.....	.....	.....	May 25, 1904	.....

XIV.—SALES of Animals under The Pound District Ordinance.

Poundkeeper	Address	Class of Animal	First Gazette Notice	Date of Sale	Amt. in hands of dept.
W. S. Johnson	Raymond	Red cow : red roan cow, 2 years old.	Dec. 30, 1903	Jan. 28, 1904	\$20 00
"	"	Roan steer, two years old, branded on left ribs	May 31, 1904	July 4, 1904	4 31
"	"	Light yellow mare, branded on right shoulder	June 15, 1904.	July 28, 1904	10 14
"	"	Red roan bull, 2 years old, unbranded .....	.....	.....	6 17
"	"	Black mare, branded on hip and thigh : bay colt, unbranded	June 30, 1904.	.....	.....
"	"	Blue roan horse, branded on right thigh and shoulder .....	.....	.....	.....
"	"	White saddle horse, branded on right jaw .....	.....	.....	0 50
"	"	Brown mare, 8 years old	June 15, 1904	.....	2 21
"	"	Yellow pony, branded on left shoulder and left thigh .....	.....	.....	7 57

THE HERD DISTRICT.

The herd district, as constituted up to the 31st December last, includes the following areas:

Lying west of the First Meridian—

Range 30 townships 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 15, 16 and sections 1 to 24 inclusive in township 17, townships 21, 22, 23.

Range 31 townships 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and that portion of township 17 lying south and east of the Qu'Appelle river, townships 21, 22, 23.

Range 32 townships 1, 2, 3, 8, 9, 11, 12, 13, 14, 15, 16 and sections 1 to 24 inclusive in township 17, township 21.

Range 33 east half of township 1, the four eastern rows of sections in township 2, the east half of township 3, townships 8, 9, 10, 12, 13, 14, 15, 16 and sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24 in township 17.

Range 34 township 8, fractional township 12, township 13.

Lying west of the Second Meridian—

Range 1 township 1, townships 1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 15, 16, and sections 5 and 6 in township 17.

Range 2, townships 1, 2, 3, 4, 5, 6, 7, sections 1, 2, 3, 6, 7, 8, 10, 11, 12, 13, 14, 15, 18, 20, 28, 29, 30 and 31; the east halves of sections 22, 23, 24, 25, 26, 35 and 36, and the west halves of Sections 32, 33, and 34 in township 13, townships 14 and 15, sections 1, 2, 3, 4, 6, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 24, 25, 26, 27, 28, 35, 36 and the east half of 20 in township 16 and sections 1 and 2 in township 17.

Range 3, townships 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, 14, 15 and sections 1 and 12 in township 16.

Range 4, townships 1, 2, 3, 4, 12, 13, 14, 15.

Range 5 townships 1, 2, 3, 4, 7, 8, 12, 13, 14, 15 and 16.

Range 6, townships 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 15, 16, 19, 20, 21.

Range 7, townships 2, 3, 12, 13, 14, 15, 16, 17, 18, 19a, 19, 20, 22.

Range 8, townships 2, 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23.

Range 9, townships 2, 3, 12, 13, 14, 15, 16, 17, 18, 19a, 19, 21, 22, 23, 35, 36.

Range 10, townships 7, 8, 12, 13, 14, 15, 16, 17, 18, 19a, 19, 20, 21 and fractional townships 22, 35, 36.

Range 11, townships 7, 8, 9, 10, 11, fractional township 15, township 20 and fractional township 21.

Range 12, townships 9, 10, 11, 12, 13, 14, 20, 21.

Range 13, townships 9, 10, 11, 13, 14, 20, 21.

Range 14, townships 6, 8, 9, 10, 11, 12, 13 and fractional township 14, townships 16, 17 and 18, also all those portions of townships 21, 22 and 23 lying west of Jumping Deer creek.

Range 15, townships 6, 7, 8, 9, 11, 12, 13, fractional township 21 lying north of the Qu'Appelle lakes and townships 22 and 23.

Range 16, townships 7, 8, 9, 10, fractional township 22 and sections 1 to 25 inclusive in township 23.

Range 17, townships 7, 8, 9, 10, 15, 16, 17, 18, 19, fractional townships 20 and 21, township 22 and south half of township 23.

Range 18, townships 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 22, 35, 36, 37, 38.

Range 19, townships 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 and sections 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16 in township 21, townships 35, 36, 37, 38.

Range 20, townships 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 38, 39.

Range 21, townships 14, 15, 16, 17, 18, 19, 20, 23, 24, 37, 38 and 39.

Range 22, townships 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 37, 38, 39.

Range 23, townships 12, 13, 15, 16, 17, 18, 19, 20 and those portions of townships 22 and 23 lying east of Long lake, townships 38, 39.

Range 24 townships 14, 15, 16, 17, 18, 27, 28, 29, 41.

Range 25, townships 15, 16, 17, 18, 19, 24, 27, 28, 29, 39, 40, 41.

Lying west of the line between townships 25 and 26 west of the Second Meridian—

Range 26, townships 15, 16, 17, 18 and those portions of townships 19 and 20 lying west of Highpound lake, townships 23, 24, 38, 39, 40, 41, 42, 43.

Range 27, townships 16, 17, 18 and that portion of township 20 lying west of the Qu'Appelle river, townships 23, 24, 25, 38, 39, 40, 41, 42, 43.

Range 28, townships 17, 18, 23, 24, 26, 27, 38, 39, 40, 41, 42.

Range 29, townships 17, 18, 26, 27.

Lying west of the Third Meridian—

Range 1, townships 16, 17, 18, 19, 20, 21, that portion of section 18 township 24a lying north of the south branch of the Saskatchewan river, townships 26, 27, 35, 41, the east half of townships 42a and 42.

Range 2, townships 16, 19, 20, 21, 34, 35, 39, 40, 41, 42, 43a, 43.

Range 3, townships 28, 29, 30, 31, 33, 34, 35, 39, 40, 41, 42, 43a and fractional township 43.

Range 4, townships 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44.

Range 5, townships 30, 35, 36, 37, 39, 40, 41, 42 and those portions of townships 43 and 44 lying south and east of the Saskatchewan river.

Range 6, townships 35, 36, 40, 41 and those portions of townships 42 and 43 lying east of the Saskatchewan river.

Range 7, those portions of townships 41 and 42 lying east of the Saskatchewan river.

Range 9, townships 35, 36, 38, 39, 40, 41.

Range 10, townships 35, 36, 38, 39, 40, 41.

Range 11, townships 36, 38, 40, 41, 42, 43.

Range 12, townships 42, 43.

Range 13, townships 42, 43.

Range 14, townships 42, 43.

Range 15, townships 43, 44.

Range 16, townships 44, 45, 46.

Range 17, townships 45, 46.

Range 18, township 46.

Range 21, townships 43, 44, 45.

Range 22, townships 43, 44, 45.

Range 23, townships 43, 44.

Range 25, townships 48, 49, 50, 51 and those portions of townships 52 and 53 lying south of the north Saskatchewan river.

Range 26, townships 48, 49, 50, 51, 52 and those portions of townships 53 lying south of the north Saskatchewan river,

Range 27, townships 48, 49, 50, 51, 52 and that portion of township 53 lying south of the north Saskatchewan river.

Range 28, townships 48, 49, 50, 51, 52 and that portion of township 53 lying south of the north Saskatchewan river.

Lying west of the Fourth Meridian—

Range 1, townships 49, 50, 51, 52 and that portion of township 53 lying south of the north Saskatchewan river.

Range 2, townships 49, 50, 52, 53 and that portion of township 54 lying south of the north Saskatchewan river.

Range 3, townships 52, 53 and those portions of townships 54 and 55 lying south of the north Saskatchewan river.

POUND DISTRICTS.

The following areas have been set apart up to the end of the past year under The Pound District Ordinance, in addition to those formed under The Village Ordinance.

No. 1—Sections 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33 and 34 in township 22 range 14 and sections 12, 13, 24, 25 and 36 in township 22 range 15, all west of the second meridian; pound keeper, Alfred Bailey, of Parklands, Fort Qu'Appelle, Assiniboia. Pound on north-west quarter of section 28 township 22 range 14 west of the second meridian.

No. 2—Those portions of townships 37, 38 and 39 in ranges 26, 27 and 28 west of the fourth meridian lying south of the Red Deer river. This district was constituted in 1897 but no pound keeper was apparently appointed.

No. 3—Sections 15, 16, 17, 20, 21, 22, the south half of section 27, the south-east quarter of the north-east quarter of section 27 all in township 47 range 27 west of the second meridian; pound keeper, Edwin Anderson of Kirkpatrick, Saskatchewan. Pound on the north-west quarter of section 27 township 47 range 27 west of the second meridian.

No. 4—Sections 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17 and 18 in township 7 range 20; sections 1, 2, 3, 10, 11, 12, 13, 14 and 15 in township 7 range 21; township 6 range 20 with the exception of sections 14, 24, 25, 26, 35 and 36; sections 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 28, 33, 34, 35 and 36 in township 6 range 21; township 5 range 20; also the east half of township 5 range 21 all west of the fourth meridian; pound keeper, W. S. Johnson, Raymond, Alberta.

No. 5—Sections 6, 7, 18, 19, 30 and 31, township 35 range 26; sections 6, 7, 18, township 56 range 26; fractional sections 31, 32, 33, 34, 35, 36, township 54 range 27, north of the Sturgeon river; township 55 range 27; and fractional sections 1, 12, 13, township 56 range 27 all west of the fourth meridian; pound keeper, Onezime Comeau, Riviere-qui-Barre, Alberta.

No. 6—Sections 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36, township 23 range 16 west of the second meridian; pound keeper resigned December 23, 1904.

No. 7—Townships 22 in ranges 11 and 12 west of the second meridian; pound keeper, R. A. Welsh, Fort Qu'Appelle, Assa.

No. 8—Township 9 in range 8 west of the second meridian; Robert Tully, Stoughton, Assa,

BULL DISTRICTS.

Set apart under Clause (2) of Section 4 of The Entire Animals Ordinance:

District No. 1—All that portion of the Provisional District of Alberta lying south of townships 34.

District No. 2—Townships 39, 40 and 41 in ranges 26 and 27 west of the fourth meridian.

District No. 3—All that portion of the Provisional District of Assiniboia lying west of a line which may be described as follows: Commencing at the point where the international boundary is intersected by the line between ranges 15 and 16 west of the second meridian and following the said line northerly until its intersection with the line between townships 14 and 15; thence westerly along said line to the third meridian; thence northerly along the said third meridian to the northerly boundary of the said Provisional District of Assiniboia.

District No. 4—All that part of the Provisional District of Saskatchewan lying west of range 11 west of the third meridian.

District No. 5—Townships 48, 49, 50 and 51 in ranges 1, 2, 3, 4, 5, 6 and 7 west of the third meridian.

District No. 6—Townships 51, 52 and 53 in range 17 west of the fourth meridian.

DESTRUCTION OF WOLVES.

The destruction of timber wolves is chiefly confined to the district south of the main line of the Canadian Pacific Railway Co. from Maple Creek west. Including the months of November and December, 1903, the sum of \$2,590.00 was paid out in bounties for the destruction of wolves up to the end of 1904. The whole of this sum was paid by the government through The Western Stock Growers' Association on the scale of \$15 for each adult animal and \$5 for each pup.

XV.—STATEMENT of Wolves Destroyed.

Association	Dogs	Bitches	Pups	Total
Western Stock Growers'.....	1899 75	43	336	454
	1900 73	54	264	391
	1901 68	68	238	374
	1902 51	40	274	365
	1903 19	22	289	330
	1904 58	38	230	326
Willow Bunch Stock Growers'.....	1899 1	...	...	1
	1900 2	1	...	3
	1901 2	...	...	2
	1902 1	...	...	1
	1903 ...	1	...	1
	1904 ...	...	...	...
The Territories.....	1899 76	43	336	455
	1900 75	55	264	394
	1901 70	68	238	376
	1902 52	40	274	366
	1903 19	23	289	331
	1904 58	38	230	326

It will be noticed from the above statement that the number of wolves destroyed each year continues to steadily diminish notwithstanding the very liberal bounties and the only inference is that this pest is gradually being exterminated. It is interesting in this connection to note what is being accomplished in the state of Montana where the bounty paid by the state is very much smaller, viz.: \$5.00 per head for adult wolves and \$3 per head for pups.

	<i>Adults</i>	<i>Pups</i>	<i>Amount of Bounty</i>
1903	1,333	1,268	\$10,469
1904.	1,565	1,972	13,741

III.—AGRICULTURAL EXPERIMENTS.**CO-OPERATIVE FIELD TRIALS.**

The co-operative experimental work outlined in the report for 1902 and begun during 1903 was again continued during 1904. The following circular letter and list of experiments was sent to the officers of each society :

The following are the co-operative experiments which have been decided upon for the year. Kindly get the members of your experiment committee together at the earliest possible moment, choose the experiments you desire to take up, and advise the Department at once in order that seed may be sent you in ample time.

Each Agricultural Society may choose from the following list, one to three experiments.

The Department will pay \$5.00 each for three experiments, provided that the instructions sent with each experiment are carried out and the returns in connection therewith, asked for by the Department, are properly made.

The money granted by the Legislative Assembly for experimental work will not allow of any society being paid for more than three properly conducted experiments; but in order to encourage members of agricultural societies to conduct experiments on their own account, it has been decided that if an experiment committee finds it has applicants for more than three experiments the Department will supply seed for additional ones, provided the applicants agree to follow the instructions sent with the experiments chosen and make the returns required by the Department.

EXPERIMENTS.

1. *Winter Wheat*.—One acre plots—(*for Alberta only*). Over 82,000 bushels of winter wheat were grown in Alberta last year, and as it is very desirable that not only the adaptability of the soil and climate to grow wheat be ascertained but also that the best varieties to grow be determined, the experiments with new varieties of winter wheat will therefore be continued. The experiment as a whole will likely consist of at least two and possibly three varieties.

2. *Rape*.—One-tenth acre plots.—This is intended to demonstrate the great value of rape as pasture for hogs, sheep and cattle. While applicable to all parts of the west, this experiment is particularly adapted to the grain growing portions of Assiniboia.

3. *Pasturing Hogs on Rape*.—One acre plots.—In some districts the success attending the demonstration plot of rape grown last year made many farmers decide to sow a considerable area with rape this year. Its value as hog pasture is appreciated by all and if experiments could be conducted to ascertain the number of pounds of gain that could be made from an acre of rape and the cost of it, it would be valuable information to everybody. The Department would like very much to have some of the societies try such an experiment. If a member of the society, with a sufficient number of hogs to conduct this experiment, would try it, he would confer lasting benefit on himself and neighbours. If such a man cannot be found, several neighbours or members of the society could tag a few of their hogs and put them together on the rape. In any case all hogs would have to be weighed before they were turned on the rape and again when the experiment was completed. If any grain was fed a record of the amount should be kept. Such an experiment properly conducted would be of great value to the whole country. The Department will supply seed for this experiment, but, unfortunately, can only pay the same rate as for other experiments, viz., \$5.00.

4. *Corn*.—One-tenth acre plots.—Some of the co-operative experiments with corn last year proved very successful, and although none of it ripened, yet the amount of fodder that was grown demonstrated the great usefulness of this plant. Two varieties will again be tested this year.

5 Clovers.—One-tenth acre plot.—A demonstration plot to see if clovers will grow and withstand the winter.

6 Grasses.—One-half acre plot.—A demonstration of the value of different grasses grown side by side.

7 Alfalfa.—One-quarter acre plots—Demonstration plots to ascertain if this most valuable of all clovers can be successfully grown. Three varieties will be tested side by side : (1) the common Alfalfa, grown all over, (2) the Turkestan Alfalfa, a hardy variety, imported from Russia, and (3) the Utah Alfalfa, grown on the high lands of that state and said to be harder than the Turkestan. As the success of the alfalfa plant depends very largely on having proper bacteria in the soil, the Department has made arrangements to supply experimentors with material for inoculating one-half of each plot. This will demonstrate whether alfalfa will grow on our prairie soils and stand the winter frosts.

As during last year this work was under the supervision of Mr. George Harcourt, B.S.A., he visited a number of the experimental tests and I submit herewith his report :

Reports on Experimental Plots, by Geo. Harcourt, B.S.A.

The response to the department's circular letter was not as large as it was last year. This was no doubt owing to the very early season and was further evidenced by the fact that only those experiments were chosen which could be sown after spring seeding was done. In a few cases the seed sent out did not reach the experimenters in time on account of delay in transit. In each case the seed was held over for the following year.

I was able during this summer to visit a number of the experimental plots in Alberta. In the southern portion the plots being conducted under the auspices of the Lethbridge Society were being well handled, while in the north those at Innisfail seemed to be receiving the greatest care and arousing the most interest. At present the interest taken in these experiments is not as keen as I would like to see. It is a new thing, however, and as the value of the experiments becomes more apparent there is no doubt the interest in the work will increase and more farmers will be found willing to devote the necessary time to make the experiments what they should be.

EXPERIMENTS WITH WINTER WHEAT.

As reported last year a quantity of three varieties of winter wheat was obtained through Professor H. P. French, director of the experiment station, Moscow, Idaho, and distributed throughout Alberta with the idea of testing its suitability to our climate. It was sent to some twenty-two people scattered along the railway line from Pincher Creek to Lacombe. It was sown as soon after July 15th as possible and made a good growth before the cold weather came on. The first heavy frosts, however, froze some of this wheat down to the ground while well known varieties of winter wheat such as Turkey Red and Dawson's Golden Chaff were not so affected. The winter proved too severe for this wheat and every experimenter reported that all of the wheat was dead—not a single plant surviving the winter. I visited a number of these experimenters in August and found that the prevailing opinion was that the varieties distributed by the department were spring wheats. This was further corroborated by the fact that Turkey Red and Dawson's Golden Chaff grown side by side with the new varieties did not winter kill and gave good yields. One experimenter stated that these varieties were grown in Idaho

as spring wheats but they were hardy enough to withstand mild winters and would then do occasionally as a winter variety. It is to be regretted that the efforts of the department in this line were frustrated by the parties relied upon to send good fall wheats forwarding those that were really spring varieties.

During the summer a second test was sent of a variety known as Velvet Chaff which had grown well at Red Deer. Seed was sent to the following: W. J. McLure, W. G. McArthur, E. C. Wetham and J. Bateman, Innisfail; R. Tiffin, Lethbridge; J. G. Vosburg, Macleod; J. J. Douglas, Lacombe; W. J. Keast and A. P. Olsen, Red Deer; R. B. Campbell, Olds; and G. W. Robertson, Vegreville.

An interesting experiment was tried by Mr. B. D. Marshall, of Regina, who sowed rather late in the fall about 20 acres of Turkey Red winter wheat. His idea is that the wheat has to be sown either very early or fairly late. In the first case the idea is to sow early enough so that the young plants have time to establish their permanent roots after the supply of food stored in the seed is exhausted. In the second case his idea is that the root system should be established but that growth should not have proceeded so far that the whole of the food stored in the grain is exhausted, or in other words that the plant is not at the "weaning" time when the ground is frozen for the winter, but a supply of food is left there to give the plant a start in the spring until permanent roots are established and it can do for itself. The weaning period is the time at which plants can stand the least and should the winter come on at such a period there would be little prospect of the plants surviving. I give his ideas for what they are worth. He sowed his wheat quite late and was satisfied if the blades of wheat just nicely showed above ground. He had his wheat in this condition when winter came and fully expected to see it come through the winter alive and make vigorous growth in the spring. Mr. Marshall comes from Nebraska, where he says the cold is just as intense as it is here, and says that he can see no reason why winter wheat will not do well in the spring wheat districts. His experiment will tend to demonstrate the correctness of his ideas.

DEMONSTRATION PLOTS WITH DWARF ESSEX RAPE.

This experiment was identically the same as the one conducted last year, the object being to demonstrate that this valuable forage crop could be successfully grown, and that it was worth growing by every farmer. The experiments last year were very successful along this line, but unfortunately this year it was somewhat dry at seeding and quite a few of the plots did not come away as quickly as they should have done, nor was the after growth as vigorous as is desired. The plots were patchy, giving a very uneven stand. A few reported that their plots did not grow, and others that the growth of rape was the poorest they ever had. Seed was sent to nine persons, but reports from only two experimenters have been forwarded. Mr. J. B. Linnell, of Summerberry, conducted one experiment under the auspices of the Wolseley Agricultural Society. He sowed his seed on potato ground the 3rd of June and started cutting it on the 25th of August. It made good growth, averaging about $3\frac{1}{2}$ feet in height, and was fed with success to pigs, calves and a stallion. In all cases it was well liked. Mr. A. P. Crisp, Moosomin, conducted his

experiment under the auspices of the Moosomin Agricultural Society. His rape was sown the 31st of May and first cutting made on August 15th. Owing to the dryness of the soil growth was uneven, ranging from 6 inches to 2 feet. The soil was a black loam heavily manured for potatoes the previous year. The rape was cut and fed to hogs and cattle and eaten readily by both classes of stock. Mr. Crisp is a firm believer in a small piece of rape for each farm. In neither case was any of the crop weighed so as to get at the yield. In order to insure success with rape or in fact any catch crop, there must be sufficient moisture in the soil to insure germination. Potato land, if well cultivated, should have sufficient moisture, but if not well cultivated and care is not taken in the spring to preserve the moisture already in the soil it is hardly likely that rape can be sown with success.

PASTURING HOGS ON RAPE.

Demonstration plots with rape to illustrate how well this plant will grow should be followed up by a practical one if possible to show the commercial side. Rape is well adapted to serve as a pasture feed for hogs and in many places large numbers of hogs are run on rape. When it is remembered that the Central Experimental Farm at Ottawa has found that the rape leaf has a feeding value almost identical with clover, one can understand the possibilities that lie hidden in a rape field. "Pigs in clover" is a well known expression signifying the acme of perfection in the feeding line for our porcine friends, and why should it not be "hogs on rape" in this country where the plant does so well? A test of the feeding value of any plant presents some difficulties, but none which cannot be overcome if a determined effort is made. The experiment called for the sowing of an acre of rape, and then when the rape was high enough, to turn on a number of pigs, as many as it would stand. If the farmer undertaking the experiment did not have sufficient hogs to keep down the rape he could possibly make arrangements with a neighbour to supply the necessary number, weighing them as they went on to the rape and again as they came off, also keeping track of all the grain fed them. In all, seed for five of these experiments was sent out. Reports have only been received from two of them. Two of the others I visited, but failure to germinate properly in time to give a good stand made the experiment a failure. The land for such an experiment must have sufficient moisture in it to germinate the seed properly, and this cannot be had as a rule on stubble land. Mr. J. G. Vossburg, Macleod, conducted the experiment and reports as follows:—

I planted about seven-eighths of an acre, using a Planet Jr. garden drill, sowing the rows 28 inches apart. I started the cultivator between the rows the next day after planting. I could see the rows perfectly as I had rolled the ground the last thing before sowing and the drill left a distinct mark. The ground was in perfect tilth and we had no weeds. The summer was very dry and the growth slow at first, but when the roots got down deeper the growth was much better, we did not have a woven wire fence around the plot, but we put nine barbed wires around it, but after a few days we found that some of the pigs were continually getting out, so we put them back in their natural grass pasture, a field of about five acres. There we fed them the rape, all they would eat, very often giving them more than they could clean up. There were fifty-four pigs in the pasture, and on August 4th ten of them gave an average weight of fifty-six pounds. They were also fed about 115 bushels of frozen wheat between August 1st and December 12th, or little less than one pound per day for each pig. This grain ration was not sufficient for best growth, but we had very little grain and tried to make it go as far as we could. The pigs were killed, about ten

each day, between the 11th and the 18th of December, and sold dressed. The average dressed weight was one hundred and twenty-two pounds. I might say that there was rape to spare when the frost killed it in the fall. I think thinning it out by pulling is a good plan. Some rape plants were three feet high.

As these pigs would not be very fat it is safe to say they would not dress more than 60 per cent. of their live weight. These pigs would then weigh over two hundred pounds, leaving in the neighbourhood of one hundred and fifty pounds gain live weight, or an average gain of a pound and one half per day. If sold by live weight these pigs would have brought at least 4 cents a pound,—this means \$6 dollars for the gain made. They consumed one pound of grain for about 100 days, and valued at one cent per pound would cost \$1. If nothing is counted for attendance there is a profit left of \$5 per hog, or on the 54 the sum of about \$270. This is for seven-eighths of an acre of rape and their run on natural pasture.

The following is the report forwarded by Mr. Angus Mackay, Superintendent of the Indian Head Experimental Farm, who also conducted this experiment:

One acre of corn land, ploughed previous fall and harrowed, was sown with 3 lbs. rape seed, in drills 28 inches apart on 1st June. A good catch resulted and the rape made rapid growth. Up to 19th July the acre was scuffled twice and all weeds in the rows were taken out by hoe. On July 19, a wire hog fence was put around the lot and a cross fence in the centre, cutting the acre in two. At this date, the rape was meeting in the rows, when 10 pigs, 5 Berkshire and 5 Tamworth grades, were put in one of the half acres. Finding the pigs were making no impression on the rape, 7 purebred Tamworths were added on 23rd July, when the test commenced. The pigs were weighed when put in and on the 23rd September and 23rd October, making a three months test. When taken off the rape on the 23rd October one-third of the rape was still meeting in the rows or very nearly so and was afterwards eaten off by cattle.

During the first two months the swine were given 2080 lbs. of meal (oats and barley, half of each), which is equal to a little less than two pounds per head per day; in the third month they consumed 1780 lbs. of meal, which equals 3½ lbs. per head per day. During the entire period very little rape was eaten and for the first month no impression whatever was made on the half acre. Until the meal ration was materially increased, the animals were always hungry. Below are given the weights of the pigs at the different dates, with the amount of gain made:

	July 23.	Sept. 23.	Oct. 23.
17 pigs weighed	1345 lbs.	1760 lbs.	2210 lbs.
Gain		415 lbs.	450 lbs.
Average weight	79 lbs.	103 lbs.	130 lbs.
" gain		24½ lbs.	26½ lbs.

In the last 30 days, when the increased ration of meal was given, the pigs made a greater gain by 2 lbs than in the 62 days previous. It was not found necessary to change the swine on to the other ½ acre; a part of this being cut and weighed, it was computed that the yield was at the rate of 32 tons per acre. It attained a height of from two to three feet.

The stand of rape obtained by Mr. Mackay was one to be proud of and many farmers saw it on the occasion of the farmer's excursion to Indian Head on July 19th. The gains made were not so great as those made at Macleod. The purebred Tamworth pigs added on the 23rd July were evidently too young as they broke out into blisters. It has been found that rape sometimes has this effect on very young pigs. Pigs not accustomed to rape have sometimes to be starved into eating it, others take to it readily, and I am afraid Mr. Mackay's kind heart could not stand to see the pigs go hungry until they would eat the rape. Once the grain ration was begun the pigs depended upon it. The department is indebted to Mr. Mackay for the careful way in which he conducted this experiment. It is being continued for next year and is one which farmers should undertake to ascertain if possible the true feeding value of rape plant in this country.

EXPERIMENTS WITH CORN.

Corn is looked upon as an uncertain crop and one which it is difficult to ripen. Although none of the plots ripened this year, yet the large amount of fodder obtained for winter feeding makes it a profitable crop to grow. There is a great deal to be learned about growing this crop, especially in getting the soil warmed up in the spring and the great benefit to be derived from frequent cultivation during the growing period. There is much more in this than most people imagine. Once the most suitable varieties have been found and the cultivation of it is understood, corn will be grown extensively on the prairies. Seed was sent to eleven experimenter-. The supply of Minnesota King ran out and Long-fellow was substituted. The seed was sown in rows 35 inches apart. By way of comparison the yields of North Dakota White Flint and Long-fellow on the Experimental Farm at Indian Head are included. This is possible because they were sown in rows the same distance apart and at about the same rate of seed per acre. Even on the experimental farm last year the corn did not germinate well and some of it had to be re-seeded. The extra cultivation given it may be responsible for the heavy yields obtained. The following is a tabular statement of the results obtained:



DEMONSTRATION Plots with Corn—*Minnesota King*.

DEMONSTRATION PLOTS IN GROWING CLOVERS.

As reported last year experiments were begun with the common red, and alsike clovers sown at the rate of 10 lbs. of alsike and 16 lbs. of red clover per acre on quarter acre plots, to demonstrate the possibilities of growing these two varieties. These plots were sown (14 in all) in the spring of 1903 and a good stand obtained. The growth made during the first season was very good averaging from six inches to over two feet in height. In the fall half of each plot was to be mulched to see what effect it would have on the wintering of the plants. The following table shows some facts about how these clovers stood the winter and the yields obtained:

DEMONSTRATION Plots with Clovers—*Common Red.*

Agricultural society	Experimenter	Date of sowing 1903	Date of cutting 1904	Average height	Condition in spring of 1904	Yield per acre tons lbs.	Nature of soil	Previous cropping
Innisfail.....	H. A. Malcolm.	June 7	Aug. 7	18 in....	Fair stand.....	Black loam.....	Deep ploughing	
Lethbridge	G. J. C. White.	June 4	Aug. 11	1 ft....	Very fair mulched. Fair not mulched.	Clay loam.....	Stubble ploughing	
Saltcoats	J. Hughes.....	May 15.	July 20	20 in.....	Plants small.....	Heavy loam.....	13 years	
Prince Albert.....	N. Acorn.....	June 1.	July 1.	.....	Winter killed.....	Sandy loam.....	Summer-fallow	
Wetaskiwin.....	A. S. Rosenroll	end May.	.....	.....	Wintered well.....	Black loam.....	Oats, sp. ploughing	
<i>At side.</i>								
Innisfail.....	H. A. Malcolm.	June 7	Aug. 7	16 in....	Good stand.....	Black loam	Deep ploughing	
Lethbridge	G. J. C. White.	June 4	Aug. 11	ft....	Very fair mulched. Fair not mulched.	Clay loam.....	Stubble ploughing	
Prince Albert.....	N. Acorn.....	June 1.	July 1.	.....	Winter killed.....	Sandy loam.....	Summer-fallow	
Wetaskiwin.....	A. S. Rosenroll	end May.	.....	.....	Wintered well.....	Black loam	Spring ploughing	

Unfortunately not one of the experimenters weighed the cutting obtained during the summer of 1904, so that it is impossible to obtain any idea of the yield. It is interesting to note that the plots conducted by N. Acorn, of Prince Albert, were killed out during the winter. The growth made by these plots the first year was remarkable, but had they been cut down several times they might have stood the winter better. Another thing about them was that a large number of the plants blossomed and this no doubt had some effect in lessening the number of plants that came through the winter. While a number of experimenters have not reported, their plots will have an influence in the district and we may look for a steadily increasing interest in growing clover.

This experiment was continued again in 1904 seed being sent to the following :—J. E. Stewart, Alameda ; R. D. Mann, Elmore ; J. Einarson, Churchbridge ; W. J. Keast, Red Deer ; A. P. Orsimond and E. C. Whetham, Unisfall ; and N. Acorn, Prince Albert. The stand obtained by most of these plots was good but no report has, as yet, been received of how they have behaved during the winter.

This experiment is being continued during 1905, and if continued it is hoped that some interest will be roused in the growth of clovers and some information found out which will tend to make their growth less difficult. The fact that the common white clover does so well and that here and there throughout the country alsike is doing well and spreading, gives promise that the clovers will yet be successfully grown.

DEMONSTRATION PLOTS IN GROWING GRASSES SIDE BY SIDE.

Seed for half-acre plots of Timothy, Western Rye and awnless Brome grasses was sent out in the spring of 1903 in order to show the growth of these grasses side by side. Seed was sent to eleven persons. Some of the plots were not sown but in nearly every case where sown, a good stand was obtained. The following is a tabulated statement of the results reported :

DEMOCRATIATION PLOTS WITH GRASSES—*Timothy*.

Agricultural society	Experimenter	Date of sowing 1903	Date of cutting 1904	Mulched		Not mulched		Nature of soil	Previous cropping
				Average height tons lbs.	Yield per acre tons lbs.	Average height	Yield per acre tons lbs.		
Lethbridge	W. H. Fairfield	June 6	July 27 3 ft.	2	764 2 ft. 9 in.	1	1745 Black loam	Potatoes and oats	
Saltcoats	J. Einarson	April 28	Aug. 1 ..... .....	....	.... 2 ft. 6 in.	2	Heavy loam.....	Potatoes	
Lethbridge	W. H. Fairfield	June 6	July 27 4 ft.	4	850 3 ft. 7 in.	2	1785 Black loam	Potatoes and oats	
Saltcoats	J. Einarson	April 28	Aug. 15 ..... .....	....	.... 3 ft ..	2	Heavy loam.....	Potatoes	
Lethbridge	W. H. Fairfield	June 6	July 27 3 ft. 4 in.	5	550 3 ft. 2 in.	4	1570 Black loam	Potatoes and oats	
Saltcoats	J. Einarson	April 28	Aug. 15 ..... .....	....	.... 3 ft.	3	1000 Heavy loam.....	Potatoes	

These yields are satisfactory, but it is to be regretted that more of the experimenters have not reported on the second season's growth. It is apparent from the results obtained by Mr. Fairfield, who by the way is a careful experimenter, that it pays to mulch. It is also to be noticed that the Western Rye grass stands well ahead of any of the others.

Seed for this experiment was sent in the spring of 1904 to the following: Isaac King, Alameda; W. P. Osler, Wolseley; J. G. Burke, Elmore; Sam Taylor and N. W. C. Baugh, Clumber; Jos. Halldorson, Churchbridge; D. Sinclair, Innisfail; Geo. S. Reid, Cecil; and K. B. Campbell, Olds. So far as reported a good stand was obtained and a full report is looked for of the yields next year. This experiment is being continued for 1905.

DEMONSTRATION IN GROWING ALFALFA.

Of all the clovers, possibly the most valuable for a dry country is the well known lucerne or alfalfa, *Medicago Sativa*. Its value as a fodder plant is so well known that it is not necessary to dwell upon its many qualities, but could it be grown successfully in the Territories it would add immensely to the wealth of the country. The fact that it has been found to stay in the soil and withstand our severe winters for periods varying from one to fifteen winters is ample proof that it will withstand our climate. At the Experimental Farm at Indian Head, alfalfa sown fifteen years ago is growing well in a place covered each winter by a snow bank. The same thing is true on the farm of Dixon Bros. at Maple Creek. Sheltered by a bluff of trees which causes it to be covered with a bank of snow during the winter, alfalfa has flourished for fifteen years and is gradually spreading. Could seed be procured from such plants it should prove much hardier than any imported variety. On the farm of Mr. J. B. Hawkes, M.L.A., Balgonie, a plot of alfalfa has flourished for nearly twenty years and other examples are to be found in almost every district throughout the west. In Southern Alberta alfalfa has taken firm hold and Mr. W. H. Fairfield, of Lethbridge, reports having about 35 acres of it. This year he was fortunate in securing about 200 pounds of seed grown on his own farm. The results obtained from sowing with this seed will be watched with great interest.

During the previous year the department had secured from Russian Turkestan a quantity of seed of a hardy alfalfa growing on the high dry uplands where the winter colds are intense and where alfalfa is depended upon for forage both summer and winter. In the States immediately south of the line this variety of alfalfa has proven very hardy. This seed was sent out to experimenters and along with it seed grown upon the high lands of Utah, also an equal quantity of common alfalfa. The plots as a whole have done well, a good stand being obtained, and many of them went into the winter in an excellent condition. Experimenters were instructed to mow the plots if weeds were prevalent and to leave a good stand for winter protection. There was one quarter of an acre in each plot.

A good deal has been said and written about the value of inoculating the alfalfa with a bacterium which acts upon the roots causing little swellings or nodules. It has been found that the bacteria working in

these nodules are able to abstract free nitrogen from the air and add it to the plant and soil, thus explaining why all leguminous plants such as clovers, peas, beans, etc., leave the soil richer in nitrogen after a crop has been taken off than it was before. It has also been found that when these bacteria are absent the plants do not do as well, they are sickly in appearance and never make a great growth. Mr. Fairfield, at Lethbridge, found his plants getting yellow and having all the appearance of dying and so sent to Wyoming for soil from an old alfalfa field, sowed it on his alfalfa, and thus inoculated his soil. The result was a great change in his plants. They gradually lost their yellow, sickly appearance and assumed a luxuriant green. Believing the absence of this bacterium from the soil might be the cause of numerous failures to grow alfalfa, a quantity of soil from his alfalfa field was obtained from Mr. Fairfield and sent to each experimenter to be sown on part of each plot as a check to ascertain what effect it would have on the plots. The full results of this experiment cannot be obtained until next season, but I wish to enclose the report of Mr. Angus Mackay of Indian Head to whom seed for this experiment was sent:

Three varieties of alfalfa were sown, Common on May 28th, Utah and Turkestan on May 30th. A good catch resulted in each case. The inoculated soil received from Lethbridge was scattered on a portion of each plot and this part made a more vigorous growth than the rest of the plot in each variety, the difference being most marked in the Turkestan Alfalfa. On plants being dug up, nodules were found on the roots to a larger extent on the treated portions, though towards the end of the season, the bacteria had begun to be fairly evenly distributed over the entire plots and were found on nearly all strong plants that were examined. The height attained in the fall by Common Alfalfa was 20 inches : Turkestan, 18 inches ; and Utah, 17 inches. Nature of soil is clay loam; cultivation summer fallow.

On the 22nd of September the writer visited these plots on the Experimental Farm at Indian Head and found the work of the bacteria as Mr. Mackay has stated. He also dug up several plants following the roots to a depth of four feet where they were broken off. Elsewhere will be found illustrations of two of the plants that were dug up showing the remarkable growth made by the roots and giving an idea of their penetrating power. These plants are a few days less than four months old. Another illustration shows the nodules on the roots of a plant.

Before closing this section, reference should be made to the eight acre plot sown by Mr. J. A. Macdonald, of Fort Qu'Appelle. He secured Turkestan alfalfa as well as seed from other sources and sowed all together with a special press drill for seeding grasses. The result was that he obtained a beautiful stand, every seed apparently growing because put down to moisture by the single disc with which it was sown. When visited this field showed a remarkably strong growth which should stand the winter well. He also secured a shipment of inoculated soil from Lethbridge and the bacteria were at work all over his field. The more I study the growth of this plant the more am I convinced that it will yet be generally grown throughout the west and successfully too. The experiment is being continued during 1905.

GEO. HARCOURT,

IV. AGRICULTURAL EDUCATIONAL WORK.

Report of the Superintendent of Fairs and Institutes.

ADMINISTRATION.

The Agricultural Societies Ordinance, as revised by the Legislative Assembly in 1903 is working very smoothly. The only trouble that has occurred has been through the secretaries of some of the societies failing to forward their annual returns to the Department before the time specified by Section 27 of the Ordinance. This Section reads as follows:

A list of the officers elected at the annual meeting and a copy or summary of each report and statement presented thereat shall be transmitted to the Department by the secretary upon the forms provided for the purpose on or before the twenty-third day of December in each year, and in case these particulars are not transmitted from any agricultural society within this date it shall not receive any portion of any Territorial Legislative grant unless the Commissioner is satisfied by the explanations given that such delay was unavoidable or inadvertent, in which case he may pay the grant which such society would be entitled to after deducting the sum of five dollars for each week of such delay.

Every possible latitude was given so far as the returns for 1903 were concerned because it was the first year, and in order that secretaries might have an opportunity to become familiar with the terms of this clause. All secretaries however, were notified that the returns for 1904 must be in on time or the provisions of the Ordinance would be rigidly enforced. I regret to say that 17 societies failed to forward their returns in time, and fines varying from \$5 to \$110 were imposed. It is impossible to tabulate the annual returns or pay the exhibition grants until all the statements are in; thus the late ones kept all the others waiting. If all the returns were in on time the grants could be paid early in the new year, or at least early enough so that a statement could be sent showing how much money each society would have available for show purposes. This would be of great value to the directors of each society in planning their year's work because there would be no uncertainty about the amount of assistance to be given by the Department. The fines were deducted from the exhibition grants in most cases, but where the society did not earn an exhibition grant the fine was taken from the grant on account of membership. Some time later the Commissioner of Agriculture recommended to the Lieutenant Governor in Council that the amounts of the fines be remitted, as the imposition of the fine and the actual retention of it from the monies earned by the society had, in his opinion, given the societies to understand that the terms of the Ordinance must be lived up to.

During the year four new agricultural societies were organised at Didsbury, Estevan, Stoughton and Creelman. The Pheasant Forks Society was disorganised and a liquidator appointed to wind up its affairs. The South Edmonton Agricultural Society transferred its interest and good will to the Strathcona Industrial Exhibition Association, and the old society was disorganised. There were 46 societies at the beginning of the year, four new ones added, and two disorganised, leaving 48 on the roll.

Last year there were two exhibition companies.—The Edmonton Industrial Exhibition Association of Edmonton, and the Inter-Western Pacific Exhibition Company at Calgary, which shared in an exhibition grant. Both drew the maximum amount payable, viz.: \$1,000. This year the Strathcona Industrial Exhibition Association is added to the number and also shares in the grants. The Amalgamated Societies of Indian Head, Fort Qu'Appelle and South Qu'Appelle held their annual exhibition at South Qu'Appelle, and next year will hold it at Indian Head. This will complete six years of amalgamation, and it will then be decided whether another period of three years will be entered upon. No returns were received during the year from the following societies: Battle River (Battleford), Cardston, South Saskatchewan and Whitewood.

AGRICULTURAL INSTITUTES.

In its institute work the policy of the Department is to cover all the districts at all thickly settled. Where there are agricultural societies the local arrangements are all left for the society to look after, but where there are no local societies the Department bears all expense. With increasing settlement the area over which the Department has to hold meetings is increasing and the near future should see a considerable increase in the number of societies in order to take the local initiative in this work. It is not necessary that an agricultural society hold a fair, it may be organised for the express purpose of holding meetings—in fact to do the work that in other places is done by the farmers institute. Where an agricultural society converts itself into an exhibition company the cost of holding agricultural institute meetings falls back on the Department and this should not be. In such places it is a question if an agricultural society should not be organised for the purpose of holding meetings and such other work as a society should do but not to hold any show. Reference to the number of meetings held by the various societies in the subjoined statement shows that more than 50% of the societies held only the two institute meetings which they are obliged to hold in order to draw a membership grant.

I am pleased to report that the work done by the stereopticon has been very satisfactory. With its slides, pictures of well known prize winning animals can be shown upon a screen, also of insects, weeds, etc. It has made many an interesting meeting and is the proper thing in connection with stock judging schools for evening meetings. The stereopticon has been used in schools to good advantage, but it has not been found possible to undertake work that will be as fully helpful to town people in the way of encouraging the growing of trees and beautifying the home surroundings as the work done for farmers.

The Department is indebted to the Forestry Branch of the Dominion Government for the services of Messrs. A. P. Stevenson, of Nelson, Man., and Arch. Mitchell, of Macleod, who advocated the cause of tree growing at institute meetings; and to the Dominion Live Stock Commissioner for supplies of speakers for institute meetings.

The number of institute meetings held under the auspices of the Department during the year was 105. At the meetings addressed by Messrs. C. D. McGilvray, D.V.M., M. D. Geddes, B.S.A., P. G. Reed, V.S., and John Bright, living animals were used to illustrate the desirable and undesirable conformations of horses and cattle and the score card was used to illustrate the value of one point as compared with another.

DEPARTMENT OF AGRICULTURE

The meetings addressed by Messrs. Palmer and Miller were given in the sugar beet growing district in Southern Alberta. These gentlemen were recommended to the Department as suitable men for this purpose, having filled the position of expert instructors for leading sugar companies in the United States. Many of their addresses were given in the beet fields and the proper methods of cultivation and thinning illustrated by practical operations. The following is a list of the meetings that were held under the auspices of the Department, together with the names of the speakers:

LIST of Agricultural Institute Meetings held in the Territories during the Year 1904.

PLACE	DATE	SPEAKERS
Caron	Feb. 29	
Carmel	Mar. 1	
Moose Jaw.....	" 1	
Pense	" 2	
Lumsden	" 3	A. P. Nelson and C. D. McGilvray, D.V.M.
Regina.	" 4	
Edgeley.. . . .	" 5	
Qu'Appelle	" 7	
Fort Qu'Appelle....	" 8	
Pincher Creek .. .	Feb. 29	
Fishburn	Mar 1	
Claresholm	" 2	
High River.....	" 3	
Okotoks.. . . .	" 4	
Sprucedale.	" 5	Arch. Mitchell and M. D. Geddes, B.S.A.
Carstairs	" 7	
Didsbury	" 8	
Olds.	" 9	
Innisfail	" 10	
Markerville	" 11	
Red Deer..... . .	" 12	
Redvers..... . .	Feb. 29	
Manor.	Mar. 1	
Arcola	" 2	
Carlisle	" 3	
Dalesboro.	" 4	T. N. Willing and M. Brennan.
Alameda.	" 4	
Carnduff.	" 5	
Carievale	" 7	
Elmore	" 8	
Gainsborough.	" 9	
North Portal.....	" 3	
Estevan.	" 4	
Weyburn	" 5	Wm. Elliott and Angus Mackay.
Yellow Grass	" 7	
Milestone	" 8	
Rouleau.. . . .	" 9	
Sintaluta	" 9	
Ellisboro.	" 10	
Wolseley	" 10	
Summerberry.	" 11	
Grenfell.. . . .	" 12	
Broadview.	" 14	A. P. Stevenson and C. D. McGilvray, D.V.M.
Whitewood	" 15	
Wapella.	" 16	
Moosomin.	" 17	
Fleming	" 18	

LIST of Agricultural Institute Meetings held in the Territories during the
Year 1904—*Continued.*

PLACE	DATE	SPEAKERS
Namao.....	" 15	
Fort Saskatchewan.....	" 16	
Clover Bar.....	" 17	
Strathcona.....	" 17	
Beaumont.....	" 18	M. D. Geddes, B.S.A. and C. H. Stuart Wade,
Rabbit Hill.....	" 19	F.R.H.S.
Wetaskiwin.....	" 21	
Rosenroll.....	" 22	
Ponoka.....	" 23	
Blackfalds.....	" 24	
Calleston.....	June 21	
St. Catharines.....	" 21	
Red Deer Hill.....	" 22	
Macdonald Station.....	" 22	John Bright and Dr. P. G. Reed.
Smithville.....	" 23	
Saskatoon.....	" 23	
Dundurn.....	" 24	
Lacombe.....	July 2	
Didsbury.....	" 7	
Olds.....	" 8	
Red Deer.....	" 9	John Bright and Dr. P. G. Reed.
Penhold.....	" 11	
Innisfail.....	" 12	
Little Red Deer.....	" 13	
Bowden	" 13	
Welling.....	" 4	
Raymond.....	" 4	
Cannon's Farm.....	" 5	
Stirling.....	" 5	
White's School House.....	" 6	
Tabor.....	" 7	
Cardston.....	" 8	
Leavitt.....	" 8	
Caldwell.....	" 9	
Mountain View	" 9	William N. Palmer and Merton Miller.
Beazer.....	" 11	
Aetna	" 11	
Taylorville.....	" 12	
Kimball.....	" 12	
Tompson's.....	" 13	
Spring Coulee.....	" 13	
New Lehi	" 14	
Magrath	" 14	
Red Deer.....	" 18	
Edmonton.....	" 19	
Spruce Grove.....	" 20	
Ray	" 21	
New Lunnan	" 22	
Fort Saskatchewan.....	" 23	
Bruderheim	" 25	James Fletcher, LL.D. and T. N. Willing.
Star.....	" 25	
Logan.....	" 26	
Tofield	" 27	
Beaver Lake.....	" 28	
Vegreville	" 29	
Egg Lake.....	" 29	
Saltcoats.....	Oct. 1	
Gburghbridge.....	" 3	Dr. C. D. McGilvray and Geo. Harcourt.

STOCK JUDGING SCHOOLS.

In last report reference was made to the introduction of a new line of work at institute meetings which, for want of a better name, I have called stock judging schools. At these meetings the eye of the farmer is given something to do and through it his interest is roused and attention held. Meetings of this kind proving successful during the summer of 1903 provision was made for holding quite a few of them during the late winter of 1904 but it was decided to make them more of a school. Accordingly seven two-day meetings were planned so as to cover the country fairly well. Then capable teachers were secured to use the score cards and with living animals point out the requirements of the markets of today and the ideal animal for farmers to breed. The societies under whose auspices the department held these meetings were asked to provide a suitable well lighted building seated in amphitheatre style on two sides and the animals to be used for instructive purposes. The following table gives the places where these meetings were held, the attendance and speakers:

STOCK Judging Schools.

Date	Place	No. of sessions	Attendance			Speakers
			Morn'g	After'n	Evening	
Jan. 26	Edmonton . . .	2	... . .	68	250	
" 27	" . . .	3	74	125	150	
" 28	Lacombe . . .	2	.....	75	27	Dr. A. G. Hopkins
" 29	" . . .	2	.....	83	30	Dr. C. D. McGilvray
Feb. 8	Oxbow	2	.....	98	103	Geo. Harcourt
" 9	"	3	77	126	102	
" 2	Macleod . . .	2	.....	47	30	
" 3	"	2	.....	50	40	
" 4	Medicine Hat . . .	3	78	124	87	Dr. A. G. Hopkins
" 5	"	2	46	84	.....	Dr. C. D. McGilvray
" 12	Yorkton	2	Not reported	.....	Blizz'd	
" 13	"	2	Abo ut 40 or	50		
" 11	Indian Head . . .	3	103	150	140	A. P. Ketchen
" 12	"	3	125	140	110	G. H. Clark
						N. M. Ross
						Wm. Elliott
						T. N. Willing
						Geo. Harcourt

The attendance and interest in these meetings far exceeded anything yet held in the way of institute meetings. I attended the Edmonton meeting in order to see the work started. I found that no place to hold the school was available and therefore no provision had been made for stock. The afternoon session was held in a hall and the people were so disappointed that an effort was made to secure a building for the next day. Through the influence of Mr. Duncan Robertson I was able to secure the saleroom of the Massey-Harris Agency. It was well lighted and a load of sawdust on the floor with the addition of chairs for seats made a good place for the meeting. Quite a number of people drove a distance of 40 miles to attend this school. Drs. McGilvray and Hopkins ably explained the score card and scored the animals used for illustrative purposes. The method followed was to explain the score card briefly using an animal to point out the conformation desired. When this was

done those present were asked to score an animal after which the teacher would give the correct score so that comparisons could be made and reasons pointed out. The discussions on various points brought out were helpful in fixing a correct idea of the type of animal wanted in each class. Similar work was done at the other points with the exception of Indian Head where a more elaborate programme was attempted. Here some of the speakers at the live stock meetings in Manitoba were secured. Mr. A. P. Ketchen, Assistant Dominion Live Stock Commissioner, took the instructive work with stock and gave capital addresses at the evening meetings, while Mr. G. H. Clark gave an address on The Adulteration of Seed Grain, explaining the new Seed Grain Bill then before the Dominion Parliament and a talk on the Story of a Grain of Wheat, illustrating the structure of the grain and methods of growth by means of slides thrown on a screen by the stereopticon. Mr. Ross gave an address on Tree Growing on the Prairies, illustrating it with large photographs of various kinds of trees and methods of planting.

On the whole these meetings were so successful that at the regular institute meetings following immediately afterwards several speakers were prepared to use the score cards and talk from living animals wherever it was desired. On the whole these meetings have done good in fostering a more correct idea of the requirement of the market for the various classes of animals a farmer raises.

The following is a statement showing the full number of agricultural societies, their membership, number of meetings held, the attendance at same and the amount of membership grant earned by each but which will not be paid until 1905.

INSTITUTE Statement.

SOCIETY	No. of meetings	No. of members	Total attendance	Membership grant payable 1905
Alameda	109	2	230	\$109.00
Battle River.....		No returns		
Broadview	148	3	120	148.00
Cardston		No returns		
Carrot River.....	164	2	200	150.00
Central Saskatchewan.....	122	4	160	122.00
Creelman	50	..	..	..
Deserett	88	5	300	88.00
Didsbury.....	92	2	175	92.00
Duck Lake.....	94	2	40	94.00
Estevan	73	1	30	..
Fairmede.....	174	2	75	150.00
Fort Qu'Appelle.....	120	2	65	120.00
Fort Saskatchewan.....	126	3	96	126.00
Gainsborough	140	2	50	140.00
Grenfell	128	2	80	128.00
Indian Head.....	148	4	150	148.00
Innisfail.....	150	4	150	150.00
Lacombe	87	3	100	87.00
Lethbridge and Dist	146	5	120	146.00
Macleod and Dist	158	4	150	150.00
Maple Creek.....	221	2	60	..
Medicine Hat.....	98	2	200	98.00
Moose Jaw.....	71	3	30	71.00
Moose Mountain.....	162	3	60	162.00
Moosomin	154	2	120	150.00
N. E. Assiniboia.....	52	2	60	52.00
Olds	108	3	40	108.00
Pincher Creek.....	52	3	50	52.00
Ponoka.....	115	2	25	115.00
Prince Albert.....	126	4	75	126.00
Red Deer	117	3	60	117.00
Regina	170	4	100	150.00
Rosthern and Hague.....	90	2	30	90.00
Saltcoats	163	2	53	150.00
Sheep Creek.....	50	..	..	50.00
Sintaluta	127	2	70	127.00
S. Saskatchewan		No returns		
Stockholm	54	2	50	54.00
S. E. Assiniboia.....	155	3	90	150.00
S. Qu'Appelle	214	2	30	150.00
Stoughton		No returns		
Wapella.....	157	2	50	150.00
Wetaskiwin	163	3	60	150.00
Whitewood		No returns		
Wolseley.....	133	2	50	133.00
Vermillion Valley and Beaver L.....	123	2	60	123.00
Yorkton.....	206	2	50	150.00
Totals for 1904.....	5,398	109	3,764	4,826.00
1903.....	5,177	93	1,103	4,342.00
1902.....	4,928	91	3,316	3,829.00
1901.....	4,588	108	5,071	2,989.00
1900.....	4,216	47	799	7,238.33

AGRICULTURAL FAIRS.

Slowly a change is coming over the local fairs. It has been found that a summer fair is preferable to a fall one, and consequently more fairs are held in the summer. This means that the fine showing of vegetables, roots and grains, which could always be seen at a fall fair,

are absent. Owing to their absence and the futility of continuing the prize list, directors have had the courage to leave these prizes out. It is to be hoped this will give them courage to make other changes. Innisfail, Grenfell and some other societies held a stock show in the summer and a grain and vegetable show in the fall. This has been found to work well. Others have gone a step further and started seed grain fairs. This is a move in the right direction and cannot help doing a vast amount of good.

The Lethbridge society started another movement, that is, an auction sale of pure bred stock on the fair grounds one day of the fair, especially a sale of female breeding stock. This, too, should be a good move, though it may take a few years of disappointing work to establish the sale in such a way that farmers will look to the sale as a medium through which they will purchase stock whether pure bred or not. Sellers will have to be educated also to the plan of taking their stock to the fair to be sold otherwise the sale will not be a success.

There is also need of a revision of many of the prize lists and probably a conference of delegates from the various societies might be able to arrive at some conclusions suitable to all. I am pleased to see that prizes for stock judging competitions have been offered at a number of fairs. There is no reason why these should not be extended to judging grain, vegetables, and other products. A few societies have held ploughing matches with considerable success and it is a line of work that could be followed with advantage. Any society holding a ploughing match will be entitled to add the amount of money paid in prizes to that paid out at an exhibition and thus draw a grant on it.

The following is a statement of the various exhibitions, showing the number of entries, the amount paid in prizes and the grant earned for exhibition purposes, but which will be paid during 1905.

DEPARTMENT OF AGRICULTURE

EXHIBITION Statement.

SOCIETY	Date of exhibition	No. of entries	Amt. paid in prizes for sports and races	Amt. paid in other prizes	Exhibition grant payable 1905
Alameda	Aug. 17	.....	\$98.00	\$290.20	\$193.47
Broadview		326	.....	293.75	195.17
Carrot River	Sept. 16	335	.....	.....	.....
Central Saskatchewan	Sept. 27	774	.....	672.15	448.10
Creelman	Oct. 13	187	5.00	27.15	.....
Deserett	Oct. 19	168	.....	160.50	.....
Didsbury	Sept. 29	186	.....	126.00	.....
Duck Lake	Sept. 30	280	.....	.....	.....
Fairmede	Aug. 13	604	.....	450.75	300.50
Fort Saskatchewan	Aug. 4	330	247.00	295.80	197.20
Gainsborough	Aug. 19	405	.....	359.75	239.83
Grenfell	Aug. 12	.....	.....	485.60	323.73
Innisfail	July 12	690	.....	588.00	392.00
Lacombe	Aug. 11	576	.....	511.50	341.00
Lethbridge and District	Aug. 16	724	400.00	514.60	343.07
Macleod and District		222	475.00	461.50	307.70
Maple Creek	Sept. 27	336	110.00	422.75	281.83
Medicine Hat	Sept. 28	797	.....	675.00	450.00
Moose Mountain	Aug. 10	800	.....	722.75	481.83
Moosomin	Aug. 9	836	.....	524.50	349.67
N.E. Assiniboia	July 22	364	.....	312.50	208.33
Olds	Oct. 3	451	.....	147.25	.....
Pincher Creek	Oct. 12	259	.....	485.75	323.83
Ponoka	Oct. 18	210	.....	153.50	.....
Prince Albert	July 22	349	339.75	551.25	367.50
Red Deer	Oct. 19	499	17.00	494.75	329.83
Regina	Aug. 17	794	1,945.00	985.00	656.67
Rosthern and Hague	Sept. 29	297	10.00	317.00	211.33
Saltcoats	Sept. 30	644	.....	475.75	317.17
Sheep Creek	Oct. 11	129	.....	268.00	178.67
Sintaluta	Aug. 12	617	.....	525.00	350.00
Stockholm		134	.....	.....	.....
S.E. Assiniboia	Aug. 18	573	.....	429.50	286.33
Wapella	Aug. 11	286	.....	127.00	.....
Wetaskiwin	Nov. 21	176	13.00	214.75	.....
Vermillion Valley and Beaver Lake	Oct. 30	648	.....	331.00	220.67
Yorkton	July 19	469	855.00	721.50	481.00
Central Assiniboian Agricultural Association	Aug. 15	854	380.75	1,053.50	702.33
Inter-Western Pacific Exhibition Association	July 5	697	4,214.07	3,185.35	1,000.00
Edmonton Industrial Exhibition Association	June 30	883*	5,385.65	2,086.00	1,000.00
Strathcona Industrial Exhibition	Aug. 8	660	575.50	716.25	477.50
Totals for 1904		18,489	15,070.72	21,152.85	11,956.26
1903		15,537	9,199.25	18,516.28	6,999.93
1902		16,029	8,803.29	16,707.93	6,805.55
1901		14,327	7,954.42	15,766.32	7,205.87
1900		9,836	.....	14,538.58	13,122.70

The following is the financial statement of the various societies and exhibition associations showing a summary of the year's work. The amount of Government grants given in this statement is the amount of the grants paid to the societies during the year and based upon the returns made for the year 1903. In the foregoing exhibition and institute statement the amount of grant given is the amount earned to be paid in 1905 and based upon the returns made for 1904. This shows total receipts from all sources, of \$120,069.62. Of this, approximately, \$99,455.33 was raised by the societies. The total expenditure is \$114,663.79 and of this only \$21,152.85 is for prizes.

FINANCIAL Statement.

SOCIETY	Balance on hand from 1903	Miscellaneous receipts	Government grants paid in 1904	Total receipts	Total expenditure	Balance on hand	Assets		Liabilities	
							Assets	Liabilities	Assets	Liabilities
Alameda	100.89	395.12	314.93	495.99	484.90	6.09	6.09	15.00		
Broadview	73.98	396.30		785.12	460.65	304.46	1,854.00	150.00		
Carrot River	73.49	161.00	113.00	347.49	287.56	59.94	1,365.00			
Central Saskatchewan	74.04	1,080.50	269.71	1,324.25	1,387.99	36.99	951.26	725.30		
Crookman		111.15		115.15	70.25	40.90				
Deseret		413.90	100.00	575.40	313.05	262.35				
Duck Lake	61.50			124.86	113.45	11.41				
Esterly	11.41	113.45								433.57
Fairmede		73.00		73.00	72.72	72.28				
Fort Qu'Appelle	273.58	325.50	389.02	998.10	576.55	421.55	1,071.55			
Fort Saskatchewan	8.04	120.00	150.00	278.04	278.04	22.33	402.33			
Gainsborough	12.22	880.30	331.37	1,223.89	1,404.95	82.94	2,582.94			
Grentell	31.13	296.80	165.00	492.93	559.00					550.00
Indian Head	129.04	427.11	359.00	915.11	675.25	239.86	1,239.86			
Innisfail	1.82	290.00	150.00	441.82	293.40	148.42	348.42	90.00		
Lacombe	38.26	993.38	359.70	1,393.34	1,378.06	15.28				
Lethbridge and District	98.00	836.72	320.02	1,254.74	1,245.20	7.54	2,007.54			
Macleod and District		2,324.40	408.86	2,733.26	2,648.34	84.92	4,170.42	900.00		
Maple Creek	10.45	1,439.61	477.22	1,927.28	1,914.20	13.08	163.08	500.00		
Medicine Hat	206.92	470.15	431.89	1,168.66	916.05	252.61	1,252.61			
Moose Jaw	137.41	782.95	464.64	1,385.00	1,108.23	276.77	335.17			
Moose Mountain		89.55	481.53	571.08	260.87	310.21	310.21			
Moosomin	1,019.06	716.35	628.27	2,363.68	1,236.90	1,123.78	1,548.78			
N.E. Assiniboia	30.37	446.60	457.03	934.00	804.39	129.61	1,299.61			
Olds	42.17	67.00	266.31	375.48	352.95	23.53	23.53			
Pincher Creek	34.85	111.15	413.12	559.12	436.70	122.22	1,222.42	336.90		
Ponoka	70.59	368.50	325.11	764.20	702.95	61.25	1,661.25			
Prince Albert		298.30		298.30	298.30					
Red Deer	168.61	887.80	485.76	1,542.17	1,357.45	184.72	5,184.72			
Regina	73.65	5,441.70	76.00	5,591.35	5,358.50	232.85	4,815.25	3,102.07		
Rosther and Hague	49.27	3,715.20	781.60	4,546.07	4,342.89	203.89	637.88	1,019.58		
Saltcoats	45.45	351.00	75.00	471.45	464.45	7.90	47.00			
Sheep Creek		408.87	451.60	860.47	762.27	98.20	2,171.70			
Sintaluta	27.71	245.90	430.78	704.39	685.61	18.78	168.78			
Stockholm	69.38	748.50	82.87	817.88	805.13	12.75	12.75	241.25		
					136.87			124.87		

DEPARTMENT OF AGRICULTURE

FINANCIAL STATEMENT—Continued.

SOCIETY	Balance on hand from 1903	Miscellaneous receipts	Government grants paid in 1904	Total receipts	Total expenditure	Balance on hand	Assets	Liabilities
S.E. Assiniboia	1.86	289.00	496.53	785.53	784.36	1.17	801.17	.....
S. Qu'Appelle	182.69	858.68	150.00	1,010.54	927.23	83.31	708.31	.....
Wapella	411.60	334.94	929.23	870.58	58.65	2,058.65	.....	.....
Wetaskiwin	175.55	52.00	464.65	413.24	51.41	51.41	.....	.....
Wolseley	237.10	427.45	766.20	561.92	204.28	2,638.28	400.00	.....
Vermillion Valley and Beaver Lake	22.75	489.00	275.05	916.15	888.45	27.70	45.00	62.30
Yorkton	152.10	3,902.25	502.44	4,498.57	4,517.13	.....	7,213.20	2,285.25
Central Assiniboin Agricultural Association	93.88	685.41	2,940.37	3,146.71	.....	.....	.....	206.34
Inter-Western Pacific Exhibition Association	36.81	722.22	.....	.....	.....	.....	.....	.....
Edmonton Industrial Exhibition, Association	247.14	26,758.10	1,000.00	28,005.24	27,901.65	103.59	709.01	4,201.00
Strathcona Industrial Exhibition Association	154.55	33,962.40	1,000.90	35,116.95	34,999.58	117.37	47,884.23	22,650.00
		5,686.35	.....	5,686.35	5,495.93	190.42	2,237.17	1,668.55
1904	.....	99,455.33	14,654.25	120,069.62	114,663.79	.....	.....	.....
1903	.....	50,510.32	11,341.93	61,977.72	72,426.06	.....	.....	.....
1902	.....	37,148.48	10,634.55	47,633.13	51,004.57	.....	.....	.....
1901	.....	39,217.61	10,194.87	50,432.38	54,274.45	.....	.....	.....
1900	.....	19,624.29	20,361.03	39,985.32	36,804.02	.....	.....	.....

OFFICIAL LIVE STOCK JUDGING.

Probably one of the best works the department is doing is that of supplying official judges to place the awards at the various exhibitions. Of the societies within reach of railways all but one have been supplied with official judges, that one did not want them. A few societies, such as Battle River, Carrot River, and the one at Vegreville have not been supplied as the expense of sending judges would have been far too great. As these points become easier of access by railway they too will be placed on the same footing as the other societies.

In order to arrange the dates of the fair in circuits, a convention of delegates from each society for this purpose was held during the stock judging school at Indian Head in February for the eastern portion of the Territories, and another at Calgary during the progress of the annual sale of The Live Stock Association in May.

Judges were also supplied for the spring stallion shows at Regina and Calgary, and the spring cattle show at Calgary held under the auspices of The Territorial Cattle Breeders' Association.

In all, the department supplied official judges to 38 fairs at an average cost of about \$25.00 per fair. In all sixteen judges were employed. Here again the department has to acknowledge its indebtedness to the Dominion Live Stock Commissioner for supplying official judges. Also to Mr. W. A. Wilson, Creamery Superintendent for Assiniboina and Saskatchewan, who so kindly placed the awards in the dairy classes at as many exhibitions as it was possible for him to attend. Where desired, he gave a short talk explaining his awards and pointing out how faults could be overcome.

During the year official judges appointed by the department placed the awards in the horse, cattle, sheep and swine classes at the following exhibitions :

Summer Fairs.

Edmonton, Calgary, Innisfail—John Bright, Myrtle, Ontario; and Dr. P. G. Reed, Georgetown, Ontario.

Yorkton—L. G. Bell, Jr., Qu'Appelle.

Churchbridge—L. G. Bell, Jr., Qu'Appelle; and T. V. Simpson, V.S., Yorkton.

Prince Albert—R. G. Mathews, V.S., Regina; Wm. Gibson, Wolseley.

Fort Saskatchewan, Strathcona, Lacombe—Bryce Wright, De Winton; and M. D. Geddes, Calgary.

Lethbridge—Bryce Wright, De Winton; and M. D. Geddes, Calgary.

Moosomin, Broadview, Wapella, Sintaluta, Fairmede, S. Qu'Appelle, Regina—J. G. Washington, Ninga, Manitoba; and Jas. Bray, Portage la Prairie, Manitoba.

Grenfell—L. G. Bell, Jr., Qu'Appelle; and R. G. Mathews, V.S., Regina.

Carlyle, Alameda, Carnduff, Gainsboro—W. W. Fraser, Emerson, Manitoba; and L. G. Bell, Jr.

Fall Fairs.

Saltecoats—C. D. McGilvray, D.V.M., Binscarth, Man.; and George Harcourt, Regina.

Maple Creek, Medicine Hat, Macleod, Olds—Wm. Moodie, De Winton; and Wm. Sharman, Brandon, Man.

Okotoks, Pincher Creek, Cardston, Raymond—M. D. Geddes, Calgary; and Wm. Sharman, Brandon, Man.

Red Deer, Wetaskiwin—Wm. Moodie, De Winton; and Bryce Wright, De Winton.

Saskatoon, Rosthern, Duck Lake—W. T. Ward, Grenfell; and Wm. Gibson, Wolseley.

EXCURSIONS TO INDIAN HEAD EXPERIMENTAL FARM.

For many years Mr. Angus Mackay has been doing a valuable work as Superintendent of the Dominion Experimental Farm at Indian Head, and the knowledge he has acquired of the best varieties of grain to grow, of handling insects, fungus and weed pests, of tree, fruit and vegetable growing, as well as his experiments in soil cultivation, makes him a most valuable man for institute addresses. Unfortunately the demands upon his time leave him but little time to devote to meetings. This is to be regretted, since he cannot meet as many farmers as he would like, the Department thought it would be a good idea to give farmers an opportunity of personally seeing Mr. Mackay's work. While many are familiar with that work through the annual report and other reports which appear from time to time, yet there is nothing equal to a visit to the place and an opportunity to actually see what is being done to realise the great value of this work, and the many lessons it holds for the man who sees it with his eyes wide open. Accordingly arrangements were made with Mr. Mackay, and the C.P.R. authorities were induced to run two big excursions, one from Fleming in the east and another from Moose Jaw in the west. Special rates were given for the round trip and the excursion well advertised. The result was that over 1,500 people took advantage of the opportunity to see the farm. It was a basket picnic, each party bringing their own luneh and picnicing in the grounds under the shade of the trees. During the afternoon short addresses were made by Dr. Elliott, the Commissioner of Agriculture, R. Lake, M.P., Mr. Mackay, and others. The Commissioner of Agriculture announced that the excursion would hereafter be an annual event, and one that should be looked forward to for the next year. Teams were on hand to convey people round the grounds, and to take lunch baskets from the train to the buildings.

The citizens of Indian Head entered heartily into the idea of the picnic and arranged a programme of sports on the exhibition grounds. For those who did not care to leave the farm there was a butter-making demonstration conducted by Mr. Gibson, butter maker at the Qu'Appelle Creamery, and a stock judging school led by W. J. Blaek, B.S.A., of Winnipeg. Both these meetings were well attended. On the whole the picnic was voted a grand success. Not only did it afford people an outing, but the lessons to be learned on the farm made it well worth a visit. A larger and more successful picnic will likely be the result next year.

GEORGE HARCOURT,
Superintendent of Fairs and Institutes,

V.—GENERAL NOTES ON AGRICULTURE.**VALUES OF WHEAT GRADES.**

An important work and one which created considerable and wide spread interest both in the United States and Canada on account of its having been the first undertaking of the sort was an investigation held under the auspices of the department into the comparative values for milling purposes of the different grades of wheat grown in the season 1903. The opinion has been gradually gaining credence with farmers that the spread in the money value of the different grades of wheat is getting to be wider than it should be. Any attempt to fix the spread between any two grades at a given figure will be received with suspicion unless based upon accurately conducted tests by reliable authorities. The farmer is naturally jealous of the high quality of his wheat and any attempt to lower its value will be viewed as tending to deprive him of the full value of his year's work. So far as we are aware no definite information has ever been published tending to show the comparative milling value of the different grades of wheat. Until this is done and done in such a way that it is convincing, farmers naturally take it for granted that those responsible for setting the price of the various grades are taking advantage of them. It is no easy task to settle this question, as a large number of analyses must be made of each grade taken from various soils and continued through a number of years. Not only must the various samples of wheat be analysed but they should be ground into flour and a baking test made of the resultant flours. This means the handling of quite large lots of wheat to insure an accurate sample of flour from each grade.

Believing that this work is of the greatest importance to farmers in the Territories, the Department of Agriculture determined to take up the work if a suitable man could be found to conduct the tests. He was found in Professor Robert Harcourt, Chemist of the Ontario Agricultural College, Guelph, Ont., who has been conducting tests with various wheats and flours and undertook to conduct these tests if the department could send him at least eight bushels of each grade to be tested, as he had found a miller who could guarantee him an accurate sample of flour from this amount. Owing to this work not being started until late in the spring some difficulty was experienced in getting satisfactory samples of the different grades of 1903, but finally Mr. A. A. Perley, of Wolseley, and Mr. E. A. Partridge, of Sintaluta, undertook to secure eight-bushel samples of the various grades from their districts. These were carefully sacked and shipped to Mr. David Horn, Chief Grain Inspector, Winnipeg, who graded them, when they were forwarded to Professor Harcourt after being sealed in such a way as to show if they had been tampered with.

A complete report of the results of his investigations was received from Professor Robert Harcourt early in September and a bulletin embodying these results was immediately prepared and widely distributed.

The results of the investigation were most interesting and showed so far as the 1903 crop was concerned that the values of the different

grades was almost identical. The above results of the crop grown in 1903, while accurate for the samples tested, must be accepted conditionally until further tests with a wider range of samples from different soils have proved their correctness. Farmers will be pleased to know that the department hopes to continue these investigations and when the results of the analyses of the various grades obtained from different soils and continued through a series of years can be brought together it is hoped that definite conclusions can be reached against which there will be no appeal. A supply of the above mentioned bulletin is still on hand and persons interested may obtain copies upon application to the undersigned.

RUST IN WHEAT.

The following note by Mr. Frank T. Shutt, M.A., Chemist of the Dominion Experimental Farms, Ottawa will be perused with interest:

The prevalence of rust this season in certain districts of Manitoba has led to enquiries regarding the general effect of this fungus upon the wheat plant—both straw and grain—and more particularly as to how it may influence their feeding value. Since apparently there are no recorded data on this subject, samples of both rusted and rust free wheat have been obtained and analysed.

In order that the results should be strictly comparable, it was important in procuring these samples that the clean and affected wheat should be of the same age and grown on the same soil. Through the kind offices of the editor of the Nor-West Farmer we were able to secure such specimens. In the letter accompanying them (under date of 15th September) it is stated that both wheats were collected by hand on the same day in the same field on the farm of Sir Wm. Van Horne at East Selkirk, Manitoba.

There was a marked difference in appearance between them, both in straw and grain. The rust-free wheat had a clear, bright yellow well ripened straw; a normal ear, both as to size and colour, and plump, well-filled grain. On the other hand, the rusted wheat straw presented in general a dirty greenish-brown appearance and on closer inspection showed many spots or patches of infection, while its ears were smaller than normal and the kernels light and much shrivelled.

ANALYSIS of Rusted and Rust-free Wheat—Straw and Grain.

	Weight of 100 kernels, Grams	Mois- ture.	Crude Protein	Crude Fat	Carbo- hydra- tes	Fibre	Ash
Straw from Rust-free wheat	7.92	2.44	1.65	39.00	39.95	9.04	
Straw from Rusted wheat. . . .	7.92	7.69	1.97	38.44	36.78	7.20	
Grain from Rust-free wheat.....	3.0504	12.26	10.50	2.56	70.55	2.29	1.84
Grain from Rusted wheat.	1.4944	10.66	13.69	2.35	68.03	3.03	2.24

The Straw—We first notice that in crude protein the rusted straw is much the richer. Under the term, crude protein is included all those nitrogenous compounds of a food that go to repair waste, form blood and build up muscle and tissue. The high value of concentrated feed stuffs is due chiefly to the large proportion of protein they contain. It may safely be concluded, therefore, that the rusted straw, containing as it does more than three times the protein found in the rust-free straw, is very much superior in feeding value.

Further, in the rusted straw we have a slightly higher percentage of fat, the constituent next in value to protein, and somewhat less fibre, the element of least value in a fodder, and hence there is additional evidence of the most satisfactory character to support the statement respecting the more nutritious nature of the rust-affected straw.

The Grain—The small and shrivelled character of the grain from the rusted wheat may be deduced from the data in the first column of the table, the weight of 100 kernels being only one half that of 100 kernels from the unaffected wheat. This fact, however, from the standpoint of a feed, does not betoken a lessening of its nutritive qualities; indeed, as the data for the protein show it has, weight for weight, considerably the higher value.

The protein of the shrivelled grain is 3·19% higher than that of the plump grains from the rust-free plant. Part of this higher protein content in the smaller grain is no doubt to be accounted for in its larger proportion of bran, but chiefly is it due to the fact that the transference and accumulation of starch in the kernel has been but partial and incomplete.*

Other factors of note in the analysis of the grain from the rusted wheat are :
 (1) the somewhat larger percentages of fibre and ash, indicating more bran, and
 (2) the lower carbohydrates (starch) and fat content.

Apart from the valuable information that these data furnish regarding the relative feeding value of the straw and grain of rusted wheat, we have in these results interesting evidence as to the physiological effect of the rust on the wheat plant. Speaking broadly, there are (after germination) two periods in the life of the wheat plant, the first, a period of feeding and assimilation; the second, a later and usually shorter period, during which the food materials accumulated in stem and leaf (straw) are transferred to and stored in the seed (kernel). There is, of course, no exact time when it can be said that the one ends and the other begins. Under normal conditions there is a gradual cessation of feeding, both by root and leaf, accompanied by an ever increasing movement of the accumulated material to the seed. The first period is characterised by growth, the second is recognised by the maturation or ripening of the seed.

Further, it would seem that in the development of the seed, the albuminoids or protein are first transferred and later—towards the close of the maturation period—the carbohydrates (starch, etc.,) are more particularly deposited.

The rust apparently does not affect the vitality of the wheat plant during the first stage or period, but as the season progresses and the ripening period advances the fungus attains the ascendancy, crippling the energies and functions of the tissues, and checking the movement of the food materials to the seed. In other words, the growth of the rust arrests development and induces premature ripeness, which, as we have seen, means a straw in which still remains the elaborated food, and a grain small, immature, rich in protein and deficient in starch.

MALTING BARLEY FOR EXPORT.

Reference has from time to time been made in the annual reports of this department to the possibilities of this country in the direction of producing two rowed barley suitable for malting purposes for export to the United Kingdom. With a view to getting further light on this subject it was decided to initiate a series of tests in different localities during 1905, and the assistance of the High Commissioner for Canada was invited in order to secure seed of the very best quality.

The following reply was received to the department's communications :—

17, Victoria Street, London, S.W.,
November 17, 1904.

SIR.—I am directed by the High Commissioner to acknowledge your letter of the 8th ultimo, respecting your wish to obtain ten bushels of each of the three leading varieties of the two rowed barley exhibited at the recent Brewer's and Malster's Exhibition in London, in connection with co-operative field trials in the North-West.

Your letter reached this department after the close of the exhibition, and I therefore placed myself in communication with the firm who had proved most successful in the barley competition, viz., Messrs Liebmann and Co., of 13, Southwark Street, London, S.E.

Mr. F. de Cramer, a representative of the firm in question, called to see me, and we discussed the question of the best varieties of barley suitable for the purpose you have in view. I gathered from this gentleman that long barleys, *i.e.*, brewing barleys, are those which command the best price and enjoy the

* Note.—Some years ago in determining the relative feeding value of frosted wheat (which presents a shrivelled appearance very similar to that of the grain from rusted wheat) we found that the protein content was considerably higher than in the unfrosted mature grain. It is evident that the effect of rust and frost, in this respect, is the same, resulting in a premature ripening or rather a drying out of the grain, which, as we have seen, means a kernel high in protein, but low in starch.

largest sale, the last condition being one upon which much emphasis is laid. The best of these are the "Smyrna," the "Chilian," and the "Californian."

With brewers, the long varieties are altogether the most popular. For instance, Mr. de Cramer informed me that Messrs Bass & Co., of Burton-on-Trent, buy about 100,000 quarters annually for malting, and this must represent a large proportion of their total purchases.

"Smyrna" barleys have been shipped to California for seed purposes with excellent results, and the crops grown there have shown that the desirable qualities of the "Smyrna" barley are transmitted to the crops grown in that state.

Mr. de Cramer assured me that there were no foul seeds in any of these barleys, and that the varieties I selected—"Bohemian," "Ouchac," and "Chilian Chevalier," are likely to do well in the North-West. I have ventured to go further than you intended, and have also bought ten bushels of a fourth variety, —English "Goldthorpe," which is highly spoken of, and should I think be included in your experiments.

I have had some experience with barley in Manitoba, both as a grower and as a grain exporter, and it was as the result of enquiries I made of Mr. de Cramer that the barleys mentioned were selected. It is claimed that they mature early, and have a short straw. In choosing the Bohemian I was perhaps influenced to a certain extent by sentiment it having taken the World's Champion Prize at the recent Exhibition. Small samples of the selected varieties are forwarded by this mail.

As regards prices, Messrs. Liehmann inform me they have simply charged cost price, and similar varieties bought in the open market would have been much more expensive. I shall, therefore be glad to be the medium of conveying your acknowledgements to the firm should the seed turn out to be satisfactory.

In Manitoba, we found it desirable to cap the barley stooks when harvesting, throwing the sheaves used for capping on one side, and threshing them separately. This greatly improved the colour.

I apprehend that barley grown in the North-West *may* develop "steely" qualities. This *may* be modified by continuous imports of European seed.

I have handled two-rowed (Chevalier) barley grown in Manitoba, weighing, cleaned, 60 lbs to the bushel, and have for years had a high opinion of the possibilities in the direction in which you are moving.

If necessary, I will arrange payment here, and will apply to you subsequently for a refund, at the same time forwarding vouchers for the amount expended, but Messrs Liehman and Co. will probably be content to await your remittance.

The barley will probably leave by the Canadian Pacific Steamship Company's vessel leaving London on the 24th instant. The officials are unable to give me the assurance asked for, viz., that, under the special circumstances, it would be carried free of charge, but are sending forward a recommendation to their head office at Montreal, and I am therefore hoping that no freight charges will be incurred in connection with the shipment.

I trust that the action taken in this matter will meet with your approbation, and need hardly say that if I can be of further service in the matter it will afford me much pleasure."

I am Sir, your obedient servant,
W. L. GRIFFITH,
Secretary.

The barleys duly arrived in first class order and arrangements have been made for their distribution to the experimenters.

FLAX.

It is an unfortunate fact, as statistics show, that the flax crop of the Territories is annually diminishing. Leaving out of consideration the value of flax fibre for linen manufacture, binder twine and fibre used in the upholstery and in the manufacture of insulating material for cold storage warehouses and dwelling houses, flaxseed and its products, linseed oil and oilcake, have an important commercial and economic place. There is evidence on the department's files to show that eastern concerns

are looking to the west for future supplies of flax. In the fall of 1904 this department received a call from Mr. E. Liersch, manager of the Canada Linseed Oil Mills Co., the largest concern of its kind in Canada, who was personally investigating the flax growing prospects of the country. At this gentlemen's suggestion the company was kind enough to furnish free of charge for field trials during 1905, five bushels each of Calcutta and La Plata flax seed which were sent to the department direct from London, England. Trials will be conducted with these during the approaching summer.

TERRITORIAL GRAIN GROWERS' ASSOCIATION.

The department has co-operated with this association and done all in its power to facilitate its work and further its ends. The fourth annual convention was held in Regina on December 13, 1904 and was very largely attended. The Commissioner of Agriculture, the deputy commissioner and the superintendent of fairs and institutes were present during the proceedings and had the honour of being elected honorary members of the association. A complete report of the proceedings was subsequently published in pamphlet forms. The association is doing a good work for the farmers of the country and is likely to widen its sphere of usefulness as time goes on.

VI.—TRANSIT AND MARKETS.**TRANSPORTATION FACILITIES.**

Owing to the preparations made by the Canadian Pacific Railway Company in the way of providing sufficient equipment for the transportation of last season's crop, it may be said that there were practically no complaints. The Territories is on the eve of a great development of railroad construction and when the newly opened districts commence to pour their tide of grain towards the markets, nothing less than a corresponding development of handling and inspection facilities at Winnipeg and terminal ports will be necessary to avoid confusion and delay.

GRAIN and Flour Exports from North-West Territories, September, 1st to August 31st, 1904.

EASTBOUND.

<i>Wheat, bus.</i>	<i>Oats, bus.</i>	<i>Barley, bus.</i>	<i>Flax, bus.</i>	<i>Flour, 98lb sacks.</i>
8,828,665	322,766	7,328	188,559	82,532

WESTBOUND.

<i>Wheat, bus.</i>	<i>Oats, bus.</i>	<i>Barley, bus.</i>	<i>Flax, bus.</i>	<i>Flour, 98lb sacks.</i>
196,310	691,096	No record kept.		20,758

AVERAGE Price of Nos. 1, 2, 3 and 4 Northern in Store Fort William for each week of 1904.

Week ending 1904	Average price in cents per bushel			
	No. 1 Northern	No. 2 Northern	No. 3 Northern	No. 4 Northern
January 2	80	76½	73½	66½
" 9	81½	78½	74½	68
" 16	"	"	"	"
" 23	83	80	76	67
" 30	"	"	"	"
February 6	86	83	79	69½
" 13	88	85	80½	71
" 20	93½	90	86	77½
" 27	1.03½	1.00½	96	85½
March 5	94½	91½	86½	75
" 12	92½	89½	84½	74½
" 19	95	91½	86	78
" 26	90½	87½	82½	75
April 2	93½	88½	85	77½
" 9	92½	88	83	76
" 16	"	"	"	"
" 23	86½	83	78½	72½
" 30	83½	80½	78½	77½
May 7	84	81½	79	71½
" 14	85	82	79½	73
" 21	87	84	81½	75½
" 28	86½	83½	81½	74½
June 4	87½	84½	82½	74½
" 11	86½	83½	80½	70½
" 18	85½	82½	78½	72
" 25	"	"	"	"
July 2	86½	83½	80	72½
" 9	90½	87½	83½	75½
" 16	91	87½	84½	76½
" 23	93	90	87½	78½
" 30	94½	91½	88½	80
August 6	97½	94½	91½	81½
" 13	99	96	93	84
" 20	1.03½	1.00½	97½	87
" 27	1.01½	98½	95½	83
Septemb'r 3	1.03½	1.00½	96½	86
" 10	1.02½	99½	94	"
" 17	1.05½	1.02½	96½	88
" 24	1.01½	98½	93½	82
October 1	1.00½	97½	"	83
" 8	97½	94½	92	83½
" 15	97½	"	"	"
" 22	97½	"	"	"
" 29	98½	95½	91	84½
November 5	97½	94	89½	82½
" 12	98	93½	88½	78½
" 19	97½	92½	87	76
" 26	95½	90½	83½	72½
December 3	93½	88½	81½	69½
" 10	"	"	"	"
" 17	94½	91½	82½	71½
" 24	95½	92½	84	73½
" 31	97	94	86½	75½
Average price for the year	92	89	87	78

PRICE of Flour, Winnipeg, for 1901, 1902, 1903 and 1904, per 98 lb. Sack.

FORTNIGHTS ENDING	No. 1 grade				No. 2 grade			
	1901	1902	1903	1904	1901	1902	1903	1904
Jan. 5	\$2.10	\$2.10	\$2.10	\$2.45	\$1.95	\$1.95	\$1.85	\$1.65
" 20	2.10	2.10	2.10	2.45	1.95	1.95	1.95	1.65
Feb. 5	2.10	2.10	2.10	2.45	1.95	1.95	1.95	1.65
" 20	2.10	2.10	2.10	2.60	1.95	1.95	1.95	1.80
Mar. 5	2.10	1.95	2.00	2.75	1.95	1.80	1.95	2.00
" 20	2.10	1.95	2.00	2.75	1.95	1.80	1.65	2.00
April 5	2.10	1.95	2.00	2.75	1.95	1.80	1.65	2.00
" 20	2.10	1.95	2.05	2.75	1.95	1.80	1.65	2.00
May 5	2.10	2.05	2.05	2.65	1.95	1.90	1.80	1.35
" 20	2.05	2.15	2.05	2.25	1.90	2.00	1.80	1.35
June 5	2.05	2.15	2.05	2.55	1.90	2.00	1.80	1.35
" 20	2.00	2.15	2.05	2.55	1.85	2.00	1.80	1.25
July 5	2.00	2.05	2.05	2.45	1.85	1.90	1.80	1.25
" 20	2.00	2.05	2.15	2.45	1.85	1.90	2.00	1.30
Aug. 5	2.00	2.05	2.15	2.55	1.85	1.90	2.00	1.30
" 20	2.00	2.05	2.15	2.65	1.85	1.90	2.00	1.30
Sept. 5	2.00	2.05	2.15	2.75	1.85	1.90	2.00	1.40
" 20	2.00	2.10	2.35	2.90	1.85	1.90	2.25	1.50
Oct. 5	2.00	2.00	2.20	2.90	1.65	2.00	1.85	1.50
" 20	2.00	2.00	2.20	2.90	1.85	1.90	1.85	1.50
Nov. 5	2.00	2.00	2.35	2.90	1.85	1.90	2.25	1.50
" 20	2.00	2.00	2.20	2.90	1.85	1.85	1.85	1.50
Dec. 5	2.00	2.00	2.35	2.90	1.85	1.85	2.20	1.50
" 20	2.00	2.00	2.35	2.90	1.85	1.85	2.20	1.50

GRAIN Elevator and Warehouse Capacity Statistics.

*Crop district	1901	1902	1903	1904
	Capacity in bush.	Capacity in bush.	Capacity in bush.	Capacity in bush.
1	675,000	908,000	1,514,000	1,503,500
2	107,000	241,000	305,000	420,000
3	536,000	575,000	1,361,000	1,323,000
4	618,000	828,000	1,330,000	3,225,000
5	754,000	1,168,000	1,439,000	1,723,000
6	...	...	...	...
7	68,000	228,000	530,000	577,000
8	...	...	...	...
9	220,000	415,000	726,000	641,000
10	...	...	...	...
11	...	...	...	...
12	347,000	347,000	306,000	450,000
13	58,000	58,000	65,000	65,000
14	...	...	...	...
15	72,000	72,000	72,000	90,000
16	...	3,000	3,000	126,000
The Territories	3,455,000	4,843,000	7,651,000	10,144,000

* For description of crop districts see under "Agricultural Statistics."

VII.—TERRITORIAL INDUSTRIES.

While wheat growing will likely remain the principal industry of the Territories for a considerable time, there can be little doubt that in the older settled portions of the country there will be an increasing tendency towards diversification of agriculture and where local conditions are favourable, the establishment of manufactures. Naturally the first manufactures to develop will be those more directly dependent on the natural products of the country for their raw material, and it is satisfactory to note that in the direction of flour milling a very material advance has been made; there being a considerable increase in the number of small mills at country points, while considerable shipments of Territorial flour have been made to the United Kingdom. Arrangements have been made for the operation of the large woollen mill recently erected at Medicine Hat and with the better prices now being paid for wool and the increase in the production of this material in Southern Alberta conditions in this trade promise well for the future. Other industries to whose establishment we may look forward with some degree of confidence are tanning, manufacture of linseed cake and oil, cereal breakfast foods, binder twine and flax fibre and various manufactures subsidiary to beef and pork packing, by which offal and trimmings are turned to profitable account.

It is hardly to be expected that the beet sugar industry will develop extensively in the Territories as its successful prosecution is so largely dependent on a plentiful supply of cheap labour which in most parts of the country is not available. It is satisfactory to know that the fine establishment at Raymond, Alberta, had a most successful season, putting on the market some 3,000,000 pounds of the very finest granulated sugar. Not the least satisfactory feature of the season's work was the fact that the local Indians were employed in connection with the cultivation and harvesting of the beets, proving most efficient workers. Messrs Knight, the proprietors of the factory, express themselves as being well pleased with the progress made as well as the prospects for the future. There is no doubt that many parts of Southern Alberta are admirably adapted for the production of sugar beets of the highest quality and where the labour question can be satisfactorily solved the growing of them will become an important industry. The refuse products of the beet sugar factory are available for feeding stock and practical use of them is being made at the Raymond factory in this connection.

OUTLET FOR INFERIOR GRADES OF WHEAT.

In seasons like last season when, owing to injurious weather conditions during the period when the wheat ought to be ripening, there is invariably a large quantity of grain in farmers' hands, which, owing to its inferior quality through freezing or otherwise and consequent low price, it does not pay the farmer to haul to market. This grain has cost the farmer just as much as his No. 1 Northern to sow, to harvest and to thresh and by not being able to market it, a great loss is imposed upon

him. While such wheat may be no use for the miller, there would appear to be other manufacturers who could make use of it and would be willing to pay a price at which it would pay the farmer to dispose of it. Canadian distillers use large quantities of American corn when they can get it at a satisfactory price. When it is scarce they use the cheaper kinds of wheat. Inquiry made by the department of one of the largest distillers in Hamilton, Ontario, as to the use of our frozen wheat, some of which had been used by him, elicited the following reply:

In reply to your letter I beg to say that the wheat you mention is graded No. 1, 2 and 3 and has been frozen. The comparative value for that class of wheat as compared with corn is as follows: American corn costs at Hamilton 54 cents per bushel. Feed wheat would cost laid down at Hamilton 55 cents per bushel, and would yield 3·13 gallons of 96% alcohol per bushel. Corn yields 3·38 gallons of 96% alcohol per bushel. At a minimum valuation of 25 cents per gallon of alcohol corn would be worth 84·5 cents per bushel, while feed wheat would be worth 78·25 per bushel. This leaves a difference of 7·25 cents per bushel in favour of corn to which must be added one cent additional cost, making altogether a difference of 8·25 cents per bushel in favour of corn for distilling purposes.

The grades mentioned above are not the grades of western inspection but refer to frozen wheat graded at Hamilton for distillers purposes. According to this estimate feed wheat for distillation would be worth here 78 $\frac{1}{4}$ cents per bushel instead of the present market value. This of course would work out in practice with the establishment of distilleries in the west, but in any case the matter is one worth consideration. We are of course apt to associate the manufacture of alcohol almost entirely with the production of whiskey and other intoxicating beverages, but it must be remembered that it occupies an important place in industries and arts and is well adapted for many domestic purposes. On the continent of Europe alcohol is largely used in motor cars, stoves for cooking, for lighting and for many other purposes and its production in the west in considerable quantities and at reasonable price might solve some domestic problems, which with coal oil at 40 cents a gallon at present offer some difficulties.

VIII.—COLONISATION.

The movement of immigration into the Territories during the past year cannot but be regarded as highly satisfactory, especially in view of the fact that the immigrants as a whole were of a superior class and included large number of persons and families from the United Kingdom and the United States. It is estimated that between 80,000 and 100,000 persons were added to the population of the Territories by immigration during 1904, a large proportion of the settlement going to newly opened portions of the country.

IX.—MISCELLANEOUS SERVICES.**PROTECTION OF GAME.***Report of Chief Game Guardian.*

As in the past the enforcement of The Game Ordinance has rested with unremunerated voluntary service, the number of guardians exclusive of the Royal North West Mounted Police being 222, of which 71 were appointed during the year. Forms for shooting permits for guests were furnished to all guardians and returns show that 80 of these were issued to applicants. For season licenses forms were only furnished to guardians at central points where they would be readily accessable to the travelling public but were also sent to any guardian who asked for them. There was little demand for the general licences to shoot, only two being issued but for birds 26 were granted.

The amendment to the Ordinance fixing a close season for geese and swans meets with the approval of those interested in the preservation of game, and the prohibition of the use of automatic shot guns will it is expected prove a wholesome check, but it is not much liked by a number of the sportsmen.

The requirements of the Ordinance have not been as strictly adhered to as desirable, the principle offenders being new settlers, landseekers, navvies and the Indians. Complaints are also made of commercial travellers from Winnipeg shooting without licences while driving between points. Sunday shooting has been reported by some guardians who say that boys do a good deal of this. Through the efforts of the guardians ten convictions for infraction of the Ordinance were secured.

Some of the suggestions made by game guardians are as follows: "Put a \$5.00 tax on guns and pay a limited number of guardians six months in the year; license guns and recruit guardians; fix a license on guns and open spring shooting of cranes which are destructive to crops; if duck and chicken season coincided it would be easier to detect offenders; make a close season for chicken for two years; it would pay to employ a guardian in the mountains."

Ducks arrived first week in April and did not leave until November and even during the first week of December some were to be seen in the rivers. The hatch in Northern Alberta although poor in certain localities was generally considered good and the reports from Southern Alberta were also favourable. In the eastern portions of Assiniboia the ducks were more abundant than for many years, but about some of the lakes in the western portion where they congregated in dry years few breeders were seen.

Geese were seen during the last week in March and first week in April and slowly moved southward during the latter part of October and November some being still in Southern Alberta the middle of December.

Prairie chickens were scarce in most parts of Assiniboia and Saskatchewan the season having apparently proved unfavourable to the young birds and they were scarce also in the Edmonton country but a good

hatch was reported in the foothill country from Red Deer south to the boundary.

Ruffed grouse were reported to be exceptionally numerous in certain portions of Northern Alberta and Assiniboia. The little white ptarmigan which frequents the higher mountains west of Pincher is said to have nearly disappeared.

Big game is probably more abundant in the eastern portions of Saskatchewan than anywhere within the Territories and appears to be increasing, the shooting was not very heavy there being about twenty moose and ten caribou known to have been killed in the neighborhood of Grand Rapids. A few moose were seen in Eastern Assiniboia and between Battleford and Elbowton and to the north-westward, also in Bow valley and about Waterton lake, both moose, caribou and mountain sheep being driven to the eastern slope by fires in British Columbia. Small deer have been seen in limited numbers throughout the Territories where the country is to any extent wooded, the antelope being found on the open prairie but becoming scarce as settlement advances. Elk have been reported from various points and there has been correspondence with the Dominion Government relative to the formation of a reservation in the Beaver hills south-east of Edmonton, in which deer might be bred in safety.

Bears have been more numerous than usual in Northern Alberta.

T. N. WILLING,
Chief Game Guardian.

PRAIRIE FIRES.

Two hundred and forty-five names are on the list of voluntary fire guardians, thirty-two of these having been appointed during the year. In addition to these all councillors of Local Improvement Districts were vested with the power of guardians, as are the members of the Royal North-West Mounted Police on whom has fallen the task of investigating the cause of the prairie fires and the prosecution of the offenders under the Ordinance. Through this source we learn that twenty-six fires occurred in Alberta and there were twenty-three prosecutions for setting them and one for refusing to assist when called on. The fines amounted to \$513.00 and costs. Reports are not to hand of fires in other districts.

Firebreaks being made and maintained by the Public Works Department need not be referred to here except in so far as saying that these prove of great value in controlling fires in the less settled portions of the country.

X—PUBLIC HEALTH**CONTAGIOUS AND INFECTIOUS DISEASES.**

While there were some local outbreaks of diphtheria and scarlatina there has been as a whole a marked diminution in the number of cases from last year. Smallpox appears to have been entirely eradicated but there has been some increase in the number of cases of typhoid and tuberculosis.

In order to ensure better local control in sanitary matters the following circular letter was early in the season addressed to all village overseers:

I beg to draw your attention to the fact that chapter 23 of 1903 (second session) section 4 reads as follows:

"4. The overseer of every village shall for the purposes of *The Public Health Ordinance* be a sanitary inspector and shall have all the powers and duties of a sanitary inspector under the said last mentioned Ordinance within the village."

I enclose for your guidance a copy of *The Public Health Ordinance* and would direct your attention especially to sections 7 and 8 thereof, in which the powers and duties of sanitary inspectors are laid down. If there is anything in these provisions which is not clear to you, kindly communicate with this department. I am sending you, under separate cover, twenty-five copies of Bulletin No. 10 in English, and a few copies of the same in French, German and Scandinavian. This Bulletin explains fully and clearly the duties of the public in respect to contagious and infectious disease. The department will be pleased to send you, upon application, any further quantity of this bulletin that you may wish. If contagious or infectious disease occurs in any house in the village, you should take care to see that the inmates are promptly furnished with a copy of the bulletin.

Early in the year a glaring case of infraction of the *Ordinance* was brought to the notice of the department. A woman residing in the vicinity of Grenfell permitted her grandchildren, who were at the time residing with her, to attend school—they having only just recovered from scarlet fever—without any precautions having been observed as to disinfection and before quarantine was raised. This resulted in a number of other cases occurring among children in the neighborhood. Proceedings were taken against the woman who was convicted and fined \$10 and costs, amounting in all to \$20.25.

As usual the North-West Mounted Police rendered valuable assistance in the administration of the *Ordinance*.

The usual statistics are appended:

COMPARATIVE Statement of Deaths from Epidemic Diseases.

—	1899	1900	1901	1902	1903	1904
Deaths from epidemic diseases	187	210	227	468	291	402
Deaths from all causes . . .	759	937	1,065	1,558	1,681	1,762
Deaths from epidemic diseases per 1,000 of all causes	246.37	224.11	213.14	300.38	173.11	228.14

DEATHS by Epidemic Diseases 1899-1904.

CAUSE OF DEATH.	TOTAL	MALE	FEMALE
Typhoid fever	1899	14	9
	1900	19	9
	1901	15	8
	1902	17	11
	1903	48	38
	1904	75	51
Smallpox	1899	2	2
	1900	....	....
	1901	5	2
	1902	6	1
	1903	....	....
	1904	2	1
Measles	1899	11	4
	1900	5	4
	1901	9	4
	1902	62	30
	1903	10	4
	1904	12	7
Scarlatina	1899	10	4
	1900	10	2
	1901	14	9
	1902	114	54
	1903	127	64
	1904	28	14
Whooping cough	1899	5	3
	1900	8	3
	1901	16	9
	1902	42	18
	1903	25	13
	1904	31	11
Diphtheria and croup	1899	21	11
	1900	41	20
	1901	32	15
	1902	99	57
	1903	61	34
	1904	48	22
Influenza	1899	16	6
	1900	17	8
	1901	11	6
	1902	7	4
	1903	18	11
	1904	10	4
Tuberculosis and scrofula	1899	99	54
	1900	109	52
	1901	118	65
	1902	118	54
	1903	139	75
	1904	193	92
Other epidemic diseases	1899	9	4
	1900	1	....
	1901	7	3
	1902	3	2
	1903	2	1
	1904	3	3

DEPARTMENT OF AGRICULTURE

CONTAGIOUS AND INFECTIOUS DISEASES IN RURAL DISTRICTS AND MUNICIPALITIES.—CASES REPORTED.

	Rural Districts	Smallpox			Diphtheria			Scarlatina			Typhoid			Measles			Chickenpox			Tuberculosis															
		Jan.-Mar.	Apr.-June	Oct.-Dec.	Jan.-Mar.	Apr.-June	Oct.-Dec.	Jan.-Mar.	Apr.-June	Oct.-Dec.	Jan.-Mar.	Apr.-June	Oct.-Dec.	Jan.-Mar.	Apr.-June	Oct.-Dec.	Jan.-Mar.	Apr.-June	Oct.-Dec.	Jan.-Mar.	Apr.-June	Oct.-Dec.													
Rural Districts	13	35	6	3	37	14	33	17	70	134	104	63	14	24	205	26	33	71	78	208	7	45	2	7	61	11	1	10	32	9	17	8	16	50	
Municipalities	4	28	3	—	35	12	26	11	29	78	163	57	15	36	271	4	8	26	21	59	11	114	6	25	156	10	4	1	7	22	..	2	2
The Territories	17	63	9	3	92	26	39	28	99	212	267	120	29	60	476	30	41	97	99	267	18	159	8	32	217	21	5	11	54	9	19	8	16	52	

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SEX	BORN IN	AGE	GENERAL DISEASES												Months																								
			I—COMMUNICABLE (EPIDEMIC DISEASES).....				II—OTHER GENERAL DISEASES.				III—GENERAL DISEASES				IV—GENERAL DISEASES				V—GENERAL DISEASES																				
1	2	3	Males	Females	Canada	Great Britain	United States	Not stated	Under 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 65	Not stated	January	February	March	April	May	June	July	August	September	October	November	December											
Totals		72	51	24	44	13	6	8	4	2	6	23	21	11	11	1	3	3	5	5	3	4	6	5	6	14	12	9											
1. Typhoid fever.....	2. Smallpox.....	3. Measles.....	4. Scarlet fever.....	5. Whooping cough.....	6. Diphtheria and croup.....	7. Influenza.....	8. Other epidemic diseases	9. Total...	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30										
209	178	113	96	148	20	18	5	29	56	39	28	26	15	13	3	25	20	16	13	12	17	17	15	18	18	22	20	14	16										
1. Pyemia and septicemia	2. Malaria fever	3. Tuberculosis and scrofula	4. Syphilis	5. Cancer	6. Other malignant tumours	7. Rheumatism, acute & chronic	8. Goit	9. Diabetes	10. Other general diseases	11. Chronic poisoning	12. Total...	13. Number of column	14. Certified by doctor	15. Males	16. Females	17. Canada	18. Great Britain	19. United States	20. Not stated	21. Under 1	22. 1 to 5	23. 5 to 15	24. 15 to 25	25. 25 to 35	26. 35 to 45	27. 45 to 65	28. Not stated	29. January	30. February	31. March	32. April	33. May	34. June	35. July	36. August	37. September	38. October	39. November	40. December

DEPARTMENT OF AGRICULTURE

MORTUARY Statistics—Continued.

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MORTUARY Statistics—Continued.

Number of column	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VII—DISEASES OF THE GENITO-URINARY SYSTEM.																														
1. Acute nephritis	13	13	6	7	7	3	1	1	2	4	1	2	2	1	1	1	1	1	1	1	5	7	1	3	4	2	2	4	2	
2. Bright's disease	45	44	25	20	19	14	7	5	1	5	10	4	17	7	3	8	5	7	3	5	7	1	3	4	1	1	1	6	3	
3. Other diseases of the kidneys and adnexa	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4. Vesical calculi	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
5. Diseases of the bladder	8	8	8	8	3	4	3	1	1	1	1	1	1	1	1	3	4	1	1	1	1	1	1	1	1	1	1	1	1	1
6. Diseases of the male genital organs	4	4	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	
7. Meritis	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
8. Other diseases of the uterus	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
9. Ovarian cysts and other ovarian tumors	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10. Other diseases of the female genital organs . . . . .	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals	79	77	43	36	34	25	11	8	1	1	2	1	12	12	9	26	16	5	4	7	9	6	9	7	8	3	8	6		
VIII—PUERPERAL DISEASES.																														
1. Puerperal septicemia	25	22	25	7	3	9	6	1	7	15	2	1	2	2	2	2	6	3	1	1	1	1	3	4	2	2	4	2		
2. Puerperal albuminuria and convulsions	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3. Other accidents of pregnancy	22	15	22	9	2	4	7	6	7	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4. Puerperal diseases of the breast . . . . .	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	49	38	49	16	6	13	14	1	14	23	11	1	4	7	8	4	2	3	2	2	4	4	5	4	5	4	5	4		
IX—DISEASES OF THE SKIN AND CELLULAR TISSUE.																														
1. Erysipelas	9	9	6	3	6	2	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2. Other diseases of the skin and its adnexa (cancer excepted)	7	6	3	4	5	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total	16	15	9	7	11	3	1	1	1	5	3	1	1	1	1	1	2	1	1	3	2	2	1	1	1	1	1	1	1	

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X—DISEASES OF THE LOCOMOTOR SYSTEM.

1. Diseases of bones and joints
2. Amputation (for unspecified disease)
3. Other diseases of locomotor organs

XI.—MALFORMATIONS (DISEASES OF INFANCY, DISEASES OF OLD AGE).

1. Still births.....
 2. Congenital debility and mal-formations.....
 3. Other diseases of infancy.....
 4. Senile decay.....

XII.—SUICIDES.

1. Poison	.....
2. Strangulation or hanging	.....
3. Asphyxia	.....
4. Drowning	.....
5. Firearms	.....
6. Cutting	.....
7. Other methods	.....
Total	.....

MORTUARY Statistics--Continued.

Number of column	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
XIII—ACCIDENTS.																														
1. Fractures and dislocations	10	9	10	5	3	2	2	1	3	5	2	1	3	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	
2. Gunshot	20	14	20	3	3	1	5	4	5	1	2	1	2	4	1	1	1	2	1	2	2	1	2	1	1	1	2	1	1	
3. Lightning	6	1	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4. Drowning	27	10	18	9	17	4	2	3	1	4	1	14	8	1	1	1	3	2	1	2	1	1	1	1	1	1	1	1	1	
5. Sunstroke and freezing	6	4	5	1	2	1	2	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6. Riding and driving	17	10	14	3	5	9	1	2	..	2	3	1	7	2	1	1	3	2	1	4	3	3	2	1	1	1	1	1	1	
7. Railways	14	12	8	6	10	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8. Burns and scalds	6	5	3	3	2	1	2	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9. Homicide .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10. Accidental poisoning	6	6	4	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11. Accident by occupation (employee)	19	12	19	7	4	2	6	..	8	..	..	2	6	4	6	1	..	1	1	..	4	..	3	2	1	2	5	1	1
12. Other Causes	23	12	13	10	12	5	4	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total.	95117	37	165	36	18	30	5	8	12	16	36	39	13	21	5	4	8	8	6	7	14	15	21	22	9	19	4	22		
XIV—ILL-DEFINED AND UNSTATED CAUSES,																														
1. Dropsy	12	5	6	2	3	1	6	..	..	1	..	2	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..
2. Tumours	3	2	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3. Other ill-defined causes	73	7	41	32	4	1	16	..	..	32	14	6	5	8	2	..	6	11	7	6	3	6	5	4	4	6	..	..	..
4. Not stated	170	4	87	83	139	1	1	29	..	107	22	10	9	3	5	9	5	17	10	24	13	8	13	13	11	16	16	16	16	
Total.	258	18135	123	193	10	3	52	..	139	37	16	16	7	10	21	12	24	22	32	19	14	21	23	20	18	21	22	22		
TOTAL ALL CAUSES :																														
1904	1,762	1,229	984	778	1,142	230	141	226	23	504	208	123	226	208	138	208	140	4	155	139	163	139	154	132	131	174	197	125		
1903	1,681	1,017	942	739	1,059	203	120	234	45	430	285	210	198	134	107	162	152	2	175	167	158	152	181	139	118	157	125	105		
1902	1,558	921	875	683	1,031	151	134	189	45	463	297	198	122	80	120	130	139	9	165	169	165	161	145	107	118	97	102	105		
1901	1,056	604	623	442	717	147	65	95	41	315	135	102	86	141	80	122	118	93	75	98	114	113	94	85	92	87	87	62		
1900	937	545	504	433	650	120	39	107	21	296	144	86	95	72	97	68	17	70	65	74	106	77	95	78	83	111	50	67	59	

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VITAL Statistics, 1904.

DIVISION	Births			Deaths			
	Male	Female	Total	Marriages	Male	Female	
Banff	27	18	45	6	5	1	6
Batoche	30	29	59	43	10	16	26
Battleford	32	33	65	28	14	7	21
Calgary	261	222	483	225	166	125	291
Cannington, E	16	24	40	3	3	3	6
Cannington, W	55	38	93	35	15	9	24
Cardston	41	29	70	19	6	6	12
Edmonton	80	71	151	71	61	34	95
Good Spirit	4	1	5	—	—	—	—
Grenfell	50	59	109	33	9	4	13
High River	34	29	63	8	10	5	15
Indian Head	35	32	67	24	14	19	33
Innisfail	71	60	131	27	20	14	34
Kinistino	19	15	34	16	4	5	9
Laconibe	115	84	199	94	33	26	59
Lethbridge	149	133	282	54	37	26	63
Macleod	64	73	137	77	35	25	60
Maple Creek	16	21	37	20	7	4	11
Medicine Hat	106	100	206	51	47	30	77
Mitchell	21	25	46	10	8	8	16
Moose Jaw	84	77	161	67	53	33	86
Moosomin	42	34	76	48	18	15	33
Pelly	5	6	11	2	1	1	2
Prince Albert, E	24	20	44	22	6	4	10
Prince Albert, W	22	23	45	18	17	7	24
Qu'Appelle, N	89	68	157	28	28	26	54
Qu'Appelle, S	65	65	130	42	16	11	27
Regina	169	151	320	129	70	58	128
Rosthern	137	139	276	108	29	34	63
St. Albert	92	74	166	27	35	22	57
Saltcoats	86	53	139	32	18	17	35
Sheho	39	51	90	17	5	5	10
Souris, E	44	57	101	27	17	9	26
Souris, W	97	81	178	41	21	24	45
Strathcona	73	89	162	62	20	16	36
Victoria	299	284	583	114	34	39	73
Wetaskiwin	143	151	294	53	46	50	96
Weyburn	43	40	83	42	12	5	17
Whitewood	55	67	122	47	11	10	21
Wolseley	44	47	91	34	8	4	12
Yorktown	125	93	218	86	15	21	36
The Territories	3,003 2,338 2,069 1,593 1,369 1,251	2,766 2,218 1,883 1,504 1,322 1,137	5,769 4,556 3,952 3,097 2,691 2,388	1,890 1,521 1,094 869 827 671	984 942 875 623 504 405	778 739 683 442 433 354	1,762 1,681 1,558 1,065 937 759
Increase over 1903	665	548	1,213	369	42	39	81

BIRTHS by Months

Month	Male	Female	Total	Month	Male	Female	Total
January	262	250	512	July	260	245	505
February	234	211	445	August	284	240	524
March	267	266	533	September	237	246	483
April	247	214	461	October	233	206	439
May	254	242	496	November	231	192	423
June	254	245	499	December	240	209	449

DEATHS of Infants.

Year	To 1,000 births	To 1,000 deaths of all ages
1899	90·45	284·58
1900	109·99	384·19
1901	101·71	295·50
1902	117·91	299·10
1903	94·38	255·80
1904	87·53	286·60

BIRTHS and Ratio of Births to Deaths.

Year	Births of males to 1,000 births of females	Ratio of births to deaths
1899	1,100	3·14
1900	1,035	2·87
1901	1,059	2·90
1902	1,098	2·54
1903	1,054	2·71
1904	1,085	3·27

MARRIAGES by Months.

Month	No.	Month	No.
January.....	185	July	145
February.....	166	August.....	140
March.....	106	September.....	140
April.....	136	October.....	149
May.....	132	November.....	224
June.....	174	December.....	193

MARRIAGES.—Religious Denominations of Contracting Parties.

Officiating Clergymen	BRIDEGROOMS				BRIDES											
	Donominations															
	Presbyterians	Methodists	Anglicans	Roman Catholics	Lutherans	Greek Catholics	Baptists	Mennonites	Latter Day Saints	Moravians	Evangelical Ref'd	Congregationalists	Jewish	Others	Not stated	Totals
468	Presbyterian	232	47	37	9	5	15	1	1	1	8	3	1	358	1	358
393	Methodists	73	202	37	1	6	18	1	1	4	3	3	1	352	2	352
249	Anglicans	44	37	186	9	12	4	4	1	1	1	1	1	1	1	288
267	Roman Catholics	4	8	11	260	4	4	1	1	1	1	1	1	1	1	302
122	Lutherans	7	7	7	140	7	6	1	1	1	1	1	1	1	1	178
27	Greek Catholic	1	1	2	33	1	1	1	1	1	1	1	1	1	1	36
95	Baptists	15	19	7	4	35	61	1	1	1	3	3	3	3	3	87
67	Mennonites	2	1	1	1	1	1	1	1	1	1	1	1	1	1	67
45	Latter Day Saints	1	1	1	1	1	1	1	41	1	1	1	1	1	1	42
11	Moravians	1	1	1	1	1	1	1	6	1	1	1	1	1	1	8
5	Evangelical Ref'd	1	1	1	1	1	1	1	3	1	1	1	1	1	1	7
3	Congregationalists	3	1	2	1	1	3	1	4	1	1	1	1	1	1	14
1	Jewish	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
137	Others	4	3	1	7	1	1	1	1	1	122	3	1	1	1	141
.....	Not stated	1	1	1	1	1	1	1	1	1	10	1	1	1	1	12
1,890	Totals	386	325	291	301	162	37	86	63	42	7	4	9	1	149	271,890

MARRIAGES.—Origins of Contracting Parties.

		BRIDES												
		English Speaking countries				Others								
BRIDEGROOMS		Canada	United States	United Kingdom	Totals	German	Austrian	Scandinavian	French	Others	Totals	Half-breeds	Indians	Totals
Eng. Speak'g countries	Canada	536	67	107	710	5	..	2	3	15	25	..	..	735
	United States....	91	140	25	236	4	1	9	..	11	25	..	..	281
	United Kingdom....	84	18	203	305	3	..	1	..	3	7	..	..	312
	Totals.	711	225	335	1,271	12	1	12	3	29	57	..	..	1,328
Others	German	5	4	6	15	13	1	..	..	1	15	..	..	30
	Austrian.....	8	1	4	13	3	251	..	..	6	260	..	..	273
	Scandinavian....	7	4	3	14	..	..	34	..	1	35	..	..	49
	French .....	..	..	..	..	..	..	..	4	3	7	..	..	7
	Others.....	11	15	2	28	4	8	..	..	150	162	..	..	190
	Totals.	31	24	15	70	20	260	34	4	161	479	..	..	549
	Half-breeds.....	1	..	..	1	..	..	..	..	..	1	..	..	2
	Indians.....	1	..	..	1	..	..	..	..	..	..	10	..	11
	Totals.	744	249	350	1,343	32	261	46	7	190	536	1	10	1,890
Mean Marriage Age		Males.				Females.								
		1904.....				28.12								
		1903.....				28.49								
		1902.....				26.99								
		1901.....				28.75								
		1900.....				29.20								
		1899.....				29.54								

TERRITORIAL HOSPITALS.

Two hospitals were during the year, added to the list of such institutions entitled to receive assistance under the provisions of The Hospital Ordinance. These are respectively located at Battleford and Red Deer. From information received by the department a number of new hospitals will be established throughout the country during 1905. Boards of hospital directors appear to be improving the business methods of their institutions, but there is still a good deal to be done in this direction. Funds subscribed for charitable purposes must be administered in the most economical and businesslike way, otherwise the fountain is apt to dry up. Some hospitals still adopt extremely extravagant methods of buying staple supplies, which, in the case of the larger institutions at least, should, whenever possible, be supplied under contracts entered into after public tender. The statistics given below are worth consideration by those who have the welfare of these excellent and necessary institutions at heart.

DEPARTMENT OF AGRICULTURE

HOSPITAL STATISTICS—I.

Name of hospital	Location	Approximate area served in square miles	Total cost of buildings	Total cost of furnishing	Cost per patient per day				No. of patients 1904	No. of days treatment	Value of charity work done 1904	
					1898	1899	1900	1901				
Victoria Hospital	Regina	26,688	\$10,040.00	\$4,090.20	\$1.88	\$1.75	\$1.73	\$1.40	\$8.85	\$1.04	\$4,061.98	
Medicine Hat	Medicine Hat	44,320	\$9,364.94	\$4,146.67	\$.88	.91	1.16	1.22	1.17	1.05	616	
Prince Albert	Prince Albert	36,574	10,064.39	5,599.27	..	2.23	1.21	1.69	1.66	1.10	1.53	10,283
Edmonton Public	Edmonton	11,128.09	3,293.91	3,293.91	1.23	1.23	1.05	.89	133	4,219.07
Edmonton General	Edmonton	23,723	29,378.48	5,517.46	1.49	1.49	1.00	1.00	1.23	1.06	390	2,889.04
Holy Cross	Calgary	8,439.62	1.20	1.44	1.28	1.28	.70	.85	498	4,732
Calgary General	Calgary	12,074	48,550.05	6,188.3589	.61	38	277.80
Galt	Lethbridge	8,050	21,327.26	9,416.64	.88	1.62	1.46	1.41	1.02	.89	.75	4,844
Macleod	Lethbridge	8,050	4,456.15	2,823.21	.98	.98	1.92	1.22	1.29	1.19	1.37	12,642
MacLeod General	MacLeod	4,853.24
Queen Victoria	Yorkton	8,735	6,781.81	1,954.11	2,525.71
Piney Creek Memorial	Piney Creek	8,739	1,695.52	538.65	1,645.95
Moosomin General	Moosomin	8,900	Bentley	559.13	632.42
Battleford General	Battleford	56,528	2,210.18	780.53	786.36
Red Deer Memorial	Red Deer	35,697	7,856.72	1,250.00	1,623.33
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HOSPITAL Statistics—II.

INCURABLES.

The arrangement which has for some years been in force between the Medicine Hat Hospital and this department for the care of incurable patients was continued during the year. On the 31st of December, 1903, there were 6 patients under treatment as incurables, 4 men and 2 women. In January a man named W. W. Brown, suffering from paraplegia, was sent to the hospital from Moose Jaw, but died after a short residence there. In February, John Varsen, a man of 74 years of age, suffering from senile disorders, was admitted from Calgary. In August, John Leuba, who had been under treatment for some time, in the Red Deer hospital, was removed to Medicine Hat, and in September R. A. McDonald was sent from Regina. This man underwent an operation, and was subsequently discharged as cured. In October a man named David Smith, who had been under treatment in Regina hospital, was sent to Medicine Hat as incurable. He afterwards developed mental derangement and was subsequently admitted to Brandon Asylum as insane.

XI.—OFFICE WORK AND ORGANISATION.**DEPARTMENTAL LIBRARY.**

As usual the department has received a large number of important and valuable bulletins and reports from various agricultural departments in the United States and from the United Kingdom, and complete sets of stud books have been presented by the various associations recognised by the department. A few purchases of technical books have also been made so that the library, while still small in size, is of considerable value to the officials of the department.

STATISTICS OFFICE WORK.*Accountant's Branch.*

Year	Number of deposits made	Number of vouchers prepared
1900	2,455	396
1901	2,838	727
1902	3,710	733
1903	4,777	643
1904	4,077	764

Correspondence Branch.

Details	1898	1899	1900	1901	1902	1903	1904
Letters received	8,511	10,718	10,475	13,244	17,262	20,914	18,534
Letters sent	7,551	13,763	15,472	12,064	20,383	18,086	15,998
Circulars, blank forms, etc., sent	3,949	6,388	12,760	8,812	33,719	31,339	35,383
Licences and certificates issued	6,144	2,456	2,645	2,936	3,540	4,436	4,170

Revenue.

1898	\$2,683.00
1899	3,075.50
1900	3,671.03
1901	3,804.47
1902	11,573.83
1903	7,124.39
1904	8,254.07

REMARKS IN CONCLUSION.

In concluding what promises to be, in view of impending constitutional changes, the last report of the Territorial Department of Agriculture I cannot but think that the past record of the department under the direction of former Commissioners of Agriculture as well as of yourself is one

that should prove a considerable source of satisfaction to the public of the Territories and also to the various officials who have been connected with it in its brief if eventful career of under eight years. In the lines of educational work of agricultural legislation and general administration it has, so far as the means at its disposal would allow, kept well up with other Departments of Agriculture which pursue an aggressive policy, while in certain directions it has taken a distinctly leading position. The cheerful and willing support accorded by the agricultural journals of the west and the various newspapers is in itself a testimony to the confidence of the public in the soundness of the work done by the Territorial Department of Agriculture, and I venture to express the hope that when the Departments of Agriculture for the new provinces come to be formed they may find that they have but to continue the work of the Territorial department, extending and developing it as their increased resources and the conditions of their respective provinces may permit.

I desire to take this opportunity of thanking the press of the Territories for courtesies extended in the way of publication of items relating to the work of the department, the officials of the Canadian Pacific Railway for their willing co-operation with the department in many schemes for furthering the agricultural interests of the country and the office staff of the department for the hearty assistance and support rendered in carrying on the various lines of work.

I have the honour to be, Sir,

Your obedient servant,

J. R. C. HONEYMAN,
Deputy Commissioner.

XII.—APPENDICES.**APPENDIX A.****TERRITORIAL CATTLE BREEDERS ASSOCIATION.***Officers for 1904-05.*

President Peter Talbot, Lacombe, Alta.
 First Vice-President John A. Turner, Calgary, Alta.
 Second Vice-President D. H. Andrews, Crane Lake, Assa.
 Secretary-Treasurer and Managing Director C. W. Peterson, Calgary, Alta.

Breed directors :

Shorthorns	Hon. W. Beresford, Calgary.
Herefords.....	Robert Sinton, Regina, Assa.
Polled Angus.....	J. D. McGregor, Walsh, Assa.
Galloways	E. D. Adams, Calgary, Alta.
Dairy Breeds.....	J. C. Pope, Regina, Assa.

Ex officio directors :

Hon. Dr. Elliott.....	Commissioner of Agriculture, Regina, Assa.
F. W. Hodson.....	Dominion Live Stock Inspector, Ottawa, Ont.

Members for 1904.

Fay, J. H., Blackfalds.
 Wright, B., De Winton.
 Flewwelling, H. F., Lacombe.
 Talbot, H., Lacombe.
 Turner, J. A., Calgary.
 Hammer, W., Olds.
 Indian Industrial School, Dunbow.
 English, S. R., Strathcona.
 Bolton, J. and E. Okotoks.
 McAndrews, Jas., Davisburg.
 Murry, A., Priddis.
 McPherson, Jos., Calgary.
 Wright & Suiter Bros., Gladys.
 McGill, A. F., Lacombe.
 Talbot & Sons, P., Lacombe.
 Palmer, O., Lacombe.
 Parlby, W., Lacombe.
 Chunnel, W. W., Gladys.
 Marke, J. A., Gleichen.
 Laidman, Bros., Lacombe.
 Minnedosa Ranching Co., Medicine Hat.
 Bolton, A. H., High River.
 Barker, Thos., Calgary.
 Sparrow, A. C., Calgary.
 Crocker & Son, C. H., Pine Lake.
 Fall, Wm., Broadview.
 Gardner, Annie F., Broadview.
 Sinton, R., Regina.
 Shouldice, Jas., Gleichen.
 Beresford, W., Calgary.
 Webster, J. R., Pheasant Forks,

Hutchinson, T. W., Ponoka.
Hurst, J., Oxbow.
Peterson, C. W., Calgary.
Watson, H. C., Oxbow,
Richardson, G., Nutana.
Turner, Jas., Calgary.
Begg, J., Arcola.
Richardson, T. W., Dundurn.
Proctor, J., Dundurn.
Cochrane Macleod Co., Macleod.
Caswell, J. D., Rosthern.
Macfie, T. F., Fort Qu'Appelle.
Shelley, H. A., Calgary.
Cochrane, W. E., Cayley.
Morton, Jno., Calgary.
Doan, J. E., Innisfail.
Sheppard, H. N., High River.
Ellis, Mrs. C., Innisfail.
Fletcher, G., Lacombe.
Andrews, D. H., Crane Lake.
Dodds, John, Calgary.
Wells, George, Calgary.
Adams, E. D., Calgary.
Belsom, W. H., Grenfell.
Agricultural Society, Maple Creek.
Eckford, A. H., High River.
Wiggleworth, Wm., Olds.
Duncan, G., Innisfail.
O'Neil, J. D., Calgary,
Paisley, S. W., Lacombe.
Center, W. L., Innisfail.
Taylor, R., Lacombe.
Sheets, Dr., Cardston.
Winslow, A. J., Priddis.
Thursk, Wm., Wetaskiwin.
Peters, K., Didsbury.
Brown, C. E., Calgary.
Clark, J., Crowfoot.
Tough, Jas., Edmonton,
Kellogg, G. B., Olds.
Robertson, D. C., Edmonton.
Ramsay, J., Priddis.
Dixon Bros., Maple Creek.
McPherson, J. A., Spruce Grove.
Sharp, J. & W., Lacombe.
Bryon, C. E., Jumping Pond.
Agriculture Society, Innisfail.
Findlater, S. W., Lacombe.
Rowley, A. B., Ponoka.
Henry, J. S., Calgary.
Robinson, John, Innisfail.
Raikes, H., Pine Lake.
Coppock, H. C., Calgary.
Daly, Thos., Strathcona.
Page, R., Pine Lake.
Taylor, J. G., Langdon.
Hamilton, Thos., Innisfail.
Waines, Ed., Springbank.
Laycock, Thos. Calgary,
Bennett, R. K., Calgary.
Kerfoot, W. D., Cochrane.
Riley, E. H., Calgary.
Moosomin Boyd Co., Bobcaygeon, Ont.
Grose, J. H., Lacombe.
Brody, Leslie V., Fort Qu'Appelle.
Parker, J. T., Lethbridge.
Walters, J. L., Lacombe.
Blackwood, A. S., De Winton.
Kinnon, Geo., Cottonwood,

REPORT OF THE SECRETARY.

MR. CHAIRMAN AND GENTLEMEN,—I herewith beg to submit my fifth annual report on the transactions of The Territorial Cattle Breeders' Association for the year 1904.

The Annual Auction Sale.

The 1904 Purebred Cattle Sale exceeded in volume and importance all previous sales. The Territorial Association Sale now occupies the proud position of being the largest individual purebred cattle sale in the world. It was pointed out in last year's report that from the modest beginning of sixty-four head sold at the first annual sale in 1901 for \$5,451 and two hundred and twenty head in 1902 which were disposed of for \$21,077, this system of buying and selling purebred cattle gained so rapidly in popularity that in 1903 two hundred and sixty-eight head of purebred cattle changed hands for the sum of \$25,890 and two hundred and ninety-three head last year for \$29,245. In spite of the increased number sold the average price obtained was \$91.42 as against \$96.60 in 1903, \$95.80 at the 1902 sale and \$85.17 obtained in 1901.

The following statement shows the detail of last year's sale:

Aberdeen Angus Bulls, 5	\$107.00
" " Cows, 1	60.00
Galloway Bulls, 7	40.71
" " Cows, 10	56.90
Hereford Bulls, 76	127.17
" " Cows, 14	91.42
Shorthorn Bulls, 131	104.23
" " Cows, 49	65.22
Total number of head, 293.	
Average price realized, \$91.42.	

It should be mentioned that the 1904 sale would have easily broken all previous records if all the animals entered had been able to reach Calgary in time. Unfortunately, however, owing to a breakdown on the Prince Albert Railway nearly seventy-five entries had to be cancelled at the last moment resulting in considerable loss to the owners and expense and inconvenience to the association.

SPRING CATTLE SHOW AT CALGARY, MAY 10th, 1904.

List of Prizewinners.

HEREFORDS.

Three years and over.

1st.	173, The General, 1438.....	Jaines Tough, Edmonton.
2nd.	133, Roblin, 1597.....	John T. Parker, Lethbridge.
3rd.	134, Pry, 140374.....	John T. Parker, Lethbridge.

Two years and under.

1st.	124, Benedict, 164264.....	John T. Parker, Lethbridge.
2nd.	154, Lewis Wilton, 147513.....	R. Sinton, Regina.
H.C.	134, Pry, 140374.....	John T. Parker, Lethbridge.

CHAMPIONSHIPS.

173. The General, 1438.....James Tough, Edmonton.

HEREFORD COWS.

1st. 180, Maple Duchess 4th, 1487 . . . James Shouldice, Gliechen Alta.
H.C. 191, Ruth, 99937 . . . Robert Sinton, Regina, Assa.
C. 183, Miss Ideal, 1289 . . . James Shouldice, Gliechen, Alta.

ABERDEEN ANGUS.

Aberdeen Angus Bull any age.

1st. 4, Centre Hill Emperor, 42807 . . . C. H. Crocker, Pine Lake, Alta.
H.C. 3, Ponoka Maybird, 60322 . . . C. H. Crocker, Pine Lake.
C. 5, Canton Peabody, 40439 . . . J. H. Fay, Blackfalds.

SHORTHORNS.

Shorthorns three years and over.

1st. 224, Sittyton Hero, 16th, 38862 . . . Hon. Win. Beresford Calgary.
 2nd. 287, Bonnie Prinee, 40979. H. F. Flewwelling, Lacombe.
 3rd. 220, Sir Donald, 38574 J. McK. Andrews, Davisburg.
 4th. 361, Lord Bob, 39969. John A. Turner, Calgary.
 5th. 336, Prince Charles of Glenbow,
 41533 John Robinson, Innisfail.

Shorthorn Bulls two years.

1st. 308, Crimson's Choice, 51236 . . . A. F. McGill, Lacombe.
 2nd. 374, Canadian Beau, 50116 . . . Hugh C. Watson, Oxbow, Assa.
 3rd. 355, Glen Bruce, 50772 . . . Peter Talbot, Lacombe.
 4th. 309, Crimson's Favorite, 51237 . . . A. F. McGill, Lacombe.
 5th. 375, Scottish Chief, 50117 . . . Hugh C. Watson, Oxbow, Assa.

SHORTHORN BULLS.

Yearlings.

1st.	344, Commodore	46927	J. and W. Sharp, Lacombe.
2nd.	350, Idlewyld,	2nd., 51051	Henry Talbot, Lacombe.
3rd.	356, Janus,	50773	Peter Talbot, Lacombe.
H.C.	359, Glenmore	Swell,	John A. Turner, Calgary.
C.	286, Bellevue King,	51128	H. F. Flewwelling, Lacombe, Alta.

ALBERTA CHAMPIONSHIP.

308. Crimson's Choice, 51236 A. F. McGill, Lacombe, Alta.

ASSINIBOIA CHAMPIONSHIP.

374. Canadian Beau, 50116.... Hugh C. Watson, Oxbow, Assa,

GRAND CHAMPIONSHIP.

224. Sittyton Hero 16th, 38862 Hon. Wm. Beresford, Calgary.

SHORTHORN COWS.

Three years and over.

1st. 480, Miss Alberta, Vol. 20. Henry Talbot, Lacombe
 2nd. 469, Duchess of Grafton, 38th, 46710.R. Page, Pine Lake, Alta.
 3rd. 479, Maggie 2nd, Vol. 21. Henry Talbot, Lacombe.
 H.C. 497, Venice, Vol. II. J. and E. Bolton, Okotoks.

Shorthorn two year old heifers.

CHAMPIONSHIP.

483. Daisy Good, Vol. 20 Messrs. Wright & Suiter, Gladys.

PUBLIC MEETING.

A well attended public meeting of breeders was held in Alexander Hall, Calgary, on the evening of May 11th, Hon. Dr. Elliott, Commissioner of Agriculture, occupied the chair; A. P. Kitchen, Assistant Live Stock Commissioner; Robert Miller, Stouffville, Ont.; W. S. Sparks, Canterbury, England, and Dr. J. G. Rutherford, Chief Veterinary Inspector for the Dominion were the speakers.

In his opening remarks the chairman expressed his pleasure at being able to attend such a meeting where breeders from all parts of the Territories as well as from other provinces were present. He referred to the exceptionally good possibilities of the purebred live stock industry in the Territories and to the splendid show and sale. He congratulated Calgary on being the city where such an important event took place annually.

Improvement of Agricultural Exhibitions.

Mr. Kitchen, the first speaker to be called upon, stated that his first visit to Calgary had been a revelation to him and he was delighted with the manner in which he and the other eastern delegates had been received. In taking up the subject of the improvement of the agricultural fairs he considered that any institution was successful if it fulfilled the object for which it was inaugurated. The agricultural fair, in addition to being a place for advertising the products of the country was the greatest educational force in the improvement of agricultural products. At the shows the spirit of rivalry is encouraged, an important point in conducting a successful exhibition is one of having competent judges,

It is not sufficient that they should award prizes only ; in addition to this they should state their reasons for giving the various awards. Nine out of ten of the onlookers do not know the reasons why awards are placed in a certain way. Mr. Kitchen considered it advisable for the judges to give a lecture on the various classes of live stock before the judging commenced. The lectures should follow each other so that the breeders can attend them all. After each lecture the judges could go on with the awards, and in this way the young man would receive considerable benefit at each year's fair. Where this method has been tried it has proven a great success.

The speaker also believed that the judging competition was a splendid innovation. A young man to be a good judge of live stock has to cultivate an accurate eye so that he can readily detect the good and objectionable points in an animal, must also have decision to enable him to carry out his convictions, and he must have good judgment in order that he may be able to weigh the good and bad qualities in the proper balance.

A revision of prize lists so as to give the largest prizes to the classes which were in most demand and best adapted to the locality was an important feature. No one thing had exerted such an influence on the purebred live stock industry of the British Isles as the breeding of one class of animals for a great number of years in one locality until it became famous for a certain breed of stock, and when buyers wish to purchase animals of that breed the breeders are within a few miles of each other and the buyer can see a large number of animals without going all over the country.

A point which was often overlooked and one which was painful to competent live stock breeders was a lack of skill in the fitting and showing of animals to be competed for by farmers' sons. This reward should be made irrespective of the animals being shown. This would give any farmer's son an opportunity to show his skill no matter what was the quality of his father's stock. This would be a great encouragement to young men and would enable them to see far more in their animals than they could without such competition. Their work would then become a pleasure, whereas, in some cases it is now drudgery.

The Horse Industry.

Mr. Miller spoke chiefly of the horse industry. Great Britain had taken the lead in producing the best horses because the people took the greatest interest in the animals. While England had led all countries in most classes, Scotland had bred the greatest of draught horses, the Clydesdales. To breed these animals, the Scotchman started at the bottom and combined all the best points. The Clydesdales had attained great success as draught horses in Britain and in the United States, where they had to compete against the best horses the world could produce, for both countries imported the best.

Britain had taken the lead in producing the best horses and the greatest assistance Canada could give the mother country was to take the second place. He believed Canada should try and surpass Britain in producing these horses. There were many men trying to build up the horse industry in Canada, but horses were coming into the country from the United States which would deteriorate the class unless some severe measures were adopted to stop these scrubs coming in,

W. S. Sparks, Canterbury, England, who is making a report for the government on the prospects of horse breeding in Canada, read the report which he will transmit to the live stock commissioner.

Regarding draught horses, he said they were the best for the average farmer to breed for the reasons (1) that fewer mistakes are made in breeding them; (2) that they can be put to work early in life and (3) that they can be turned into cash sooner.

There is a good demand for horses suitable for hauling in the cities and for farm work, whether they are of the heaviest type, the medium strong-backed "big-little" sort, or the express vanner. Seeing that most farmers are certain to use one of these varieties in order to do the work of the farm, it is satisfactory to know that the surplus will find a ready sale and surely the breeder has the advantage, inasmuch as he can market the four or five-year olds and fill up the gaps with the youngsters that are coming on year after year. There is no reason why the farmer should not work this system if he breeds at all, and if he does it well to aim at the heaviest kinds that his mares are capable of producing. By which I mean that blocky mares with substance should be mated with weighty stallions and it is invariably better when breeding draught horses to select a sire on the larger rather than the smaller side of the mare.

The goal of the farmer, Mr. Spark thought, in breeding should be the dray horse. He thought it was very bad for a man to breed a mare to a Clydesdale one year, a Hackney the next and a Standardbred the next. He would never accomplish any improvement by following this plan.

Regarding army remounts, Mr. Spark said that the farmer could not make money by breeding these horses. It was a question whether they could be bred on the ranche when the price was \$175.

He exhibited a number of prize horses on a canvas, showing their good and bad points. Much interest was taken in the views.

Association Silver Medals.

Following the example of the Horse Breeders' Association, your Directors have had a die made and have offered championship medals at Regina, Calgary, Edmonton and New Westminster summer fairs.

Department of Agriculture for Alberta.

After consultation with the officers of the other Territorial Live Stock Associations it has been decided to call a public meeting at Calgary to discuss the above subject. The following official invitation has accordingly been sent to all agricultural organisations and public men in the west.

CALGARY, March 25, 1905.

DEAR SIR.—Convention week at Calgary has for several years been fruitful of ideas tending to improve the condition of farmers and ranchers throughout the Territories. Some of our most important legislation and some of the most beneficial measures affecting agriculture, have had their birthplace there. When the 1905 meetings convene there will be problems to take action on, which far exceed in importance anything that has come before us. I refer particularly to the establishment of a Department of Agriculture for Alberta, incidental to the erection of a new province west of the 110th meridian.

The basis on which such a department is launched on its career, while primarily a matter for which the Government of the day must accept full responsibility, is nevertheless of the deepest concern to those who depend on the soil for a living, and whose interest in this branch of Government, therefore, rests on a business rather than a sentimental foundation.

It would scarcely seem conceivable that any Government, no matter how strong, would not welcome suggestions and advice on such an important matter from the representatives of those most directly interested, and the Territorial Live Stock Associations, being the most powerful agricultural organizations in the west, and therefore, by common consent, the most appropriate authority to take the initiative at this important juncture, have decided to call a meeting of representative farmers and ranchers at Calgary during Live Stock Convention week, to which all agricultural societies and kindred bodies throughout the proposed Province of Alberta will be invited. It is the intention to ask the leaders of the political parties in the new Province to address the meeting and to outline as far as may be practicable, their policy with respect to the broader features of agricultural administration, after which a general discussion will take place, resolutions submitted, and a committee elected to confer with the Government on the subject. The meeting will take place in the ALEXANDER HALL, at 8 p.m. on WEDNESDAY, the 17th of May.

It is an admitted fact that agriculture in Canada, and particularly in the west, is the mainstay and backbone of our whole social and commercial structure and it is likewise conceded that this all-important industry suffers under the serious disability of lack of organisation. The Provincial Department of Agriculture ought to be the central power which guards and preserves, by wise legislation and cohesive effort, the interests of those engaged in productive agriculture. The notion that this department of our Government is merely educative and administrative is a fallacy. While these are essential objects, its chief aim must be to create, encourage and direct organisation for the commercial and social advantage of farmer and rancher. Unless this is the prominent feature of its policy, it fails to satisfy the requirements of its constituents.

In order that the Government of the Province of Alberta may be inaugurated with the most active, most useful, and, from every standpoint, best organised Department of Agriculture in the Dominion, you are earnestly requested to co-operate to the extent of being present at the meeting referred to and lend your influence to secure the consideration at the hands of our new Government that the gravity of this matter warrants.

Yours faithfully,

CHAS. W. PETERSON,
Secretary and Managing Director.

Finishing of Export Steers.

There are grave reasons why the export of grass fed cattle from the west should be discontinued. Canada's reputation as a meat producing country is at present suffering severely. We are accustomed to hear a great deal about the unequalled facilities of beef raising in the west, and the excellent quality of our products. Possibly half the truth has not yet been told. But our steer examined a day or two after leaving the ranche and again upon arrival at Deptford, after a trip of fifteen to eighteen days on railway and steamship, would present a difference in appearance which might severely shake one's faith in his identity. When the grass fed western steer lines up on the British markets awaiting the inspection of buyers, he is indeed a sorry looking specimen. His only redeeming feature is that he dresses out much better than he looks, a virtue however, which is not always paid for in full. More than half of the total Canadian beef export comes direct from the ranche and the proportion of range cattle is increasing annually and will presently throw into the shade entirely the volume of grain fed export cattle originating in Eastern Canada. It will thus be seen that the quality of Canadian cattle is largely judged in England by the western export, which, to say the least, is not a credit to the country. No serious difficulty has yet been experienced in disposing of Western range stock in

the British market, but it is only reasonable to suppose that the day will assuredly come when the rancher will suffer serious financial loss through the crude condition in which his products reaches the market, unless a change in methods is speedily affected. It is, therefore, evident that the rancher as well as the farmer is interested in the development of a cattle feeding industry in the west. Apart from that consideration the experience in the Western States has been that the development of a cattle feeding industry in the Central, and, of recent years, in the Western States, has increased the value of the store steer considerably, for the reason that the average range steer is worth more for feeding than he is for immediate slaughter or export. Competition is also vastly increased when the feeder is in the market for ranche cattle.

Feeding Materials Available.

Judged by all accepted theories in farm economics, the Canadian North-West occupies agriculturally a most anomalous position, being a great grain growing country as well as possessing unequalled advantages in the way of live stock productions, while, at the same time, the agricultural exports are confined almost entirely to the raw products of the farm and ranche. This state of affairs is no doubt largely due to the abundance of cheap and highly productive agricultural lands. Comparative affluence has in past years come to the average farmer and rancher by conducting his operations on pioneer principles and the necessity has not so far become clearly apparent of departing from the "one crop" system and devoting attention to the more complex problems incidental to mixed farming. The rancher now sells his rough steer for export and receives what he considers a satisfactory return and the farmer markets his coarse grains and is apparently also satisfied with the result financially. This state of affairs, crude as it is, cannot, however, last for any considerable length of time, nor would it be in the interests of the agricultural community of Western Canada that it should.

It is reasonably certain that as the production of oats and barley increases, the ready market for these cereals which now exists throughout the west, will become a thing of the past. In the Territories alone, the crop area under oats has increased from 105,000 acres in 1898 to 524,000 acres in 1904, and the crop from three million bushels to sixteen million bushels. A very simple calculation will demonstrate that, at the present rate of increase in population, the narrow market for oats now available, must become hopelessly glutted within a very few years. A limited demand for barley for malting purposes may delay the evil date when a large crop of this cereal will be unsalable at a living price.

The market for wheat being practically unlimited, an over supply of that grain is not likely to complicate matters, but it is nevertheless in order for grain growers to carefully consider at what price it pays to sell grain and when a large profit would be derived from utilising it for feeding purposes. The Canadian west is not exempt from the operations of natural laws resulting all over the world in fat seasons and lean seasons. Often years will occur when the quality of this cereal in many districts will not be high enough to render it fit for export. It would certainly be conducive to better average returns from the farm,

if western farmers had the necessary facilities available to feed up large quantities of inferior wheat when occasion arises than to sell such grain at prices that hardly pay the cost of production.

A Limited Market Season Undesirable.

Not alone is the present system of exclusively exporting grass fed beef, which is necessarily confined to the autumn months, undesirable for economic reasons, but should be discouraged as being bad policy from a business standpoint. A perusal of British markets report will indicate that beef during the autumn months is coming forward in greater volume than in the spring, and prices consequently rule lower. A little reflection cannot fail to show clearly that as the volume of our export increases the tendency towards glutting the market in the fall months will be greater.

To establish a regular demand for Canadian beef in the British market at the best ruling prices, it is essential that the supply should be fairly constant and distributed as evenly as possible over the entire year.

It would be obviously impracticable to endeavour to maintain an absolutely regular volume of supply from the west, but this desirable state of affairs could be more nearly approached by marketing a portion of the western beef in the fall months and the balance of the spring.

No matter how well equipped the railways in the west may be, transportation complications may at any time arise when these roads are called upon to carry to the seaboard the whole beef export of the west and in late seasons, at the very time when the enormous grain crop has to be moved in the same direction. The cost of transporting the products of western farms to the final markets is assuredly paid by western farmers. Our beef and our wheat is sold in competition with the world and is worth just what it will bring in the market less the cost of transportation and middleman's expenses.

The more evenly the cattle exports are distributed throughout the year the more economically railway and steamship companies can handle this business and the lower the rates will ultimately be. Lower rates mean higher prices to the producer. This is a matter in which every farmer and rancher in the west is interested.

Government Action Required

Very little scientific work has so far been accomplished in Canada in cattle feeding, due probably to the fact that bacon production has been the principal industry in the east and has naturally claimed first place at the hands of the few public institutions devoted to agricultural research in Ontario. Some work has been done at the Brandon and Indian Head Experimental Farms in the way of steer feeding, but usually with some motive in view that had little bearing on the value of the principle feeds. These experiments were also too limited in extent and numbers to base very exact conclusions on them. Spasmodic efforts have been made by private individuals in the west here and there to fatten steers, but the data in connection therewith is generally a matter of guess work. Practically, the field is unexplored. In the United States corn is king and almost the entire series of steer feeding experiments include corn in the ration. Where corn is not extensively grown, such as in the mountain and Pacific States, wheat takes the lead. It is

of interest to note that a bill has recently been introduced into the United States Congress for the purpose of providing funds to investigate the possibilities of beef production in the non-corn growing states on a basis of cost that will enable them to compete with the corn belt.

This bill appropriates \$250,000 to enable the Secretary of Agriculture to make experiments in the non-corn growing states and territories in fattening cattle for market and in growing crops and forage plants especially adapted for this purpose. The desired appropriation is to be expended over a series of years. The proceeds of the sale of cattle experimentally fattened will be applied to the fund.

If any progress is to be made in the direction of steer feeding in the west, the Federal Government must take the lead as it has done south of the line, and I would suggest that this matter be fully discussed and a resolution submitted asking the Live Stock Division to take action and have the necessary investigations made.

Fat Stock Show.

The Territorial Department of Agriculture has now inaugurated two Territorial Fat Stock Shows which will no doubt prove powerful factors in inducing western farmers to grain feed live stock. This is the first step towards an export beef trade on sound basis.

Reorganisation of the Association.

As intimated in the above circular letter, grave political changes are now impending which will probably result in confining the scope of the present association to the new province of Alberta and the formation of a new Cattle Breeders Association for the province of Saskatchewan.

It has in the past been urged in some quarters that the time was ripe for the organisation of separate live stock associations in the easterly portion of the Territories, the reason given being that the efforts of the existing associations were almost entirely confined to Alberta. The present moment seems opportune for devoting a few remarks to this subject. While there may now, in view of the political changes which will shortly take place, be many sound reasons why new associations should be formed, it is scarcely complimentary to Alberta breeders to insinuate that they have in the past failed to safeguard the interests of their brother breeders in Saskatchewan and Assiniboa. This association has, it is true, been somewhat handicapped by great distances incidental to the enormous area covered, but it can be successfully shown that the association has nevertheless been of inestimable direct value to breeders both in Saskatchewan and Eastern Assiniboa. Last year seventy-five head of cattle were entered for the sale from those portions of the Territories, which is a very fair percentage of the total. The policy of the association from its very beginning, and a policy which has been consistently carried out in every detail, has been "equal privileges for every member irrespective of location." In order to carry out this policy the association has at some considerable financial sacrifice successfully obliterated distances in its efforts to place the member in Saskatchewan on an equal footing to members residing within a few miles of the point of sale. Every car-load of stock brought to the Calgary sale annually from distant points within the Territories involved a considerable expense over and above

the amount charged the owner which has been met out of the general funds. This fact is mentioned merely to refute any impression that may have got abroad to the effect that full justice has not in the past been accorded that portion of the Territories which will probably soon be organised on an independent basis.

District of Western Assiniboina.

In the event of a sister association being formed in the Province of Saskatchewan to be, prior to this report coming before the annual meeting it will be necessary to reorganise and in so doing consider the district to be covered by the new association.

The most appropriate district would at first sight undoubtedly be the Province of Alberta, but in view of the fact that in the opinion of many cattlemen a grave error was made in establishing the boundary line between the provinces too far west, thus splitting up the range country. It is a question to be considered whether residents of the area lying between Swift Current and Walsh, which is naturally tributary to the west, should not be admitted to the privileges of membership in the Alberta Association. In other words, whether the reorganised association should take political divisions into consideration at all or simply fix its district in the most advantageous and convenient manner.

Respectfully submitted,

CHAS. W. PETERSON,
Secretary and Managing Director.

APPENDIX B.

TERRITORIAL HORSE BREEDERS' ASSOCIATION.

Officers of the Horsebreeders' Association for the year 1904-05.

President J. A. Turner, Calgary, Alta.
 First vice-president D. H. Andrews, Crane Lake, Assa.
 Second vice-president Harold Bannister, Davisburg, Assa.
 Secretary-treasurer and Managing director..C. W. Peterson, Calgary, Alta.

Breed directors :
 Clydesdales R. E. Meiklejohn, Cochrane, Alta.
 Shires George Hoadley, Okotoks Alta.
 Hackneys J. R. Thompson, Calgary, Alta.
 Thoroughbreds E. J. Swann, Okotoks, Alta.
 Standardbreds Dr. Creamer, Qu'Appelle, Assa.
 Coach breeds Wm. Moodie, De Winton, Alta.
 Percherons A. E. Eckford, High River.
 Ex-officio directors :
 Hon. Dr. Elliott Commis'sner of Agriculture, N.W.T.
 F. W. Hodson Dominion Live Stock Commissioner.
 Executive committee :
 J. A. Turner Calgary, Alta.
 D. H. Andrews Crane Lake, Assa.
 Harold Bannister Davisburg, Alta.
 C. W. Peterson Calgary, Alta.
 Honorary members :
 J. R. Anderson Deputy Minister Agriculture, Victoria, B.C.
 Geo. Greig Secretary Live Stock Associations, Winnipeg, Man.
 A. P. Westervelt Secretary Live Stock Associations, Toronto, Ont.
 Honorary Veterinary Surgeon :
 Dr. A. Hobbs Calgary, Alta.
 Auditors :
 C. W. Rowley Calgary, Alta.
 M. Morris Calgary, Alta.

List of Members of the Territorial Horse Breeders' Association.

Brown, O. E.	Calgary.
Riley, D. E.	High River.
Hamilton, J.	Calgary.
Kinniburgh, C.	Calgary.
Hay, Geo.	La Chute, Que.
Kimball, J. R.	Raymond.
Clark, Duncan	Crowfoot.
Wylie, D. J.	Maple Creek.
Wills, Geo. S.	Spring Bank.
Douglas, W. A.	Maple Creek.
Cowan, A.	Whitewood, Assa.
Brown, J. W.	Lumsden.
Clark, John, jr.	Crowfoot.
Middleton, W. C.	Crescent Lake, Assa.
Small, Wm.	Maple Creek.
Wyndham, Spencer.	Pine Lake
Brown, A. J.	Glen Ewen, Assa.
Hewson, J. A.	Macleod, Alta.

DEPARTMENT OF AGRICULTURE

Bradley, Levi	Calgary, Alta.
Haskins, Henry	Calgary.
Lawson, H. C.	Fairy Hill, Assa.
Morrow, A. E.	Grenfell.
LeCain, A. N.	Grenfell.
Hamilton, W. L.	Coal Fields, Assa.
Kemp, W. H.	Innisfail.
Reynolds, M. H.	Devils Lake, Alta.
Quigley, T.	Cochrane.
Creighton, J. T.	Cochrane.
Townsend, E.	Cochrane.
Middleton, H. R.	Okotoks.
Proctor, H. J.	Okotoks.
Whitehead, J.	Okotoks.
Mutch, A. and G.	Lumsden.
Dafoe, Jno.	Calgary.
Robertson, D. C.	Edmonton.
McKay, E. D.	Cochrane.
Pemberton & Ward	Nanton.
Pirmiz, Raoul	Calgary.
Shipman, Francis T.	Birch Hills, Sask.
Agricultural Society	Innisfail.
Broadfoot, Wm.	Hayward, Assa.
Swann, E. J.	Okotoks.
Manson, Jno.	Didsbury.
Creamer, Dr. J. P.	S. Qu'Appelle.
Bogles, Dr. J. M.	Fort Qu'Appelle.
Wright, Bryce	De Winton.
Bannister, H.	Davisburg.
Meiklejohn, R. W.	Cochrane.
Whelan, E. J.	De Winton.
Robinson, R. W.	Spring Bank.
Christie, W. L.	High River.
Shepphard, H. M.	High River.
McPherson, Hugh	Calgary.
Clark, Jas.	Crowfoot.
Bailey, Geo.	Calgary.
Husband, Herbert W.	Calgary.
McPherson, Jos.	Calgary.
Edge, W. H.	Cochrane.
Bedingfield, Frank.	Pekisko.
Pugh & Livingstone	Okotoks.
Bockett, J. B.	Kutawa.
Andrews, D. H.	Crane Lake, Assa.
Naissens, A.	Dunhow, Alta.
Graham, W. R.	Kincardine, Ont.
Marion, Rock	Montreal, Quebec.
Adams, E. D.	Calgary.
Ewart & Hannah.	Sintaluta.
Johnston, G. H.	Calgary.
Ryan & Gould	Strathcona.
Faulkson, W.	Moosomin.
Belson, W. H.	Grenfell.
Agricultural Society	Maple Creek.
Elliott, G. G.	Indian Head.
Eckford, A. H.	High River.
Eckford, Mrs. A. H.	High River.
Kinniburgh, Mort.	Calgary.
Kahae, Louis	
Hare, W.	Olds, Alta.
Gibson, Robt. M.	Lacombe, Alta.
Mcodie, Wm.	Davisburg, Alta.
Rawlinson, C. M.	Calgary, Alta.
Laycock, Thos.	Calgary, Alta.
Short, Geo.	Calgary, Alta.
Leeds, J. M.	New Oxley, Alta.
McEacheran, Dr. D.	Livingstone, Alta.
Blois, H. S.	Carstairs, Alta.

REPORT OF THE SECRETARY.

MR. CHAIRMAN AND GENTLEMEN,—I herewith beg to submit my fifth annual report on the horse raising industry of the Territories and the transactions of the Territorial Horse Breeders Association for the year 1904.

Minimum Valuation of Horses for Customs Purposes.

This question has now been before the association since its inception, in fact, the first resolution which was passed after organisation dealt with it. Resolutions have been forwarded to Ottawa year after year asking that a minimum valuation of \$50.00 on horses entering Canada be imposed and last year a strong delegation headed by our late president Mr. W. R. Stewart, proceeded to Ottawa to lay the grievance personally before the Dominion Cabinet. In the month of March last the National Live Stock Convention assembled at Ottawa, with delegates from every portion of Canada, and the matter referred to was brought up by the Territorial delegates, representing this association, Mr. J. A. Turner, president and the undersigned.

Your representatives found that this grievance was by no means confined to the west. Ontario had been flooded with cheap Montana and Mexican ponies and breeders from that province were loud in their complaints and insisted on a minimum valuation of \$150 per head. It was however realised that such a demand would almost assuredly meet with disappointment and a compromise of \$75 was finally agreed on and a resolution to that effect was submitted to the convention and carried. At a subsequent meeting with a subcommittee of the privy council the following memorandum was presented in support of the resolution by the undersigned who was elected spokesman for the delegation.

In all progressive countries supervision of the horse-breeding industry is deemed justifiable in order to raise the average quality of horses. A large amount of public funds is annually expended in Canada with this object in view, principally through breed and agricultural societies, which are heavily subsidised both by Dominion and Provincial Governments. Improvement in horses is brought about principally by encouraging the use of high class sires and where necessary, even by imposing coercive measures in the interests of the industry, such as regulations limiting the use of male stock to those only which are free from hereditary defects.

Such being the case, it would appear as if the unrestricted importation into any country where systematic work is being done, having in view the improvement of horses, of the misfit and inferior stock of another nation would have the effect of undoing the work that has laboriously been built up through successive years by public and private expenditure and costly administration.

The following statement shows the importation of horses from the United States during the years 1901 to 1903, inclusive, together with the average valuation per head for customs purposes.

Year.	Number.	Val. per bead.
1901	8,707 .. .	\$ 30.23
1902	17,822 .. .	30.10
1903	29,598 .. .	26.43

It will readily be admitted, that if the customs valuation is correct, a very large volume of inferior horses annually finds its way into Canada, and it is submitted that a continuation of these indiscriminate importations will, in a few years, so lower the standard of horses throughout Canada, and particularly throughout the west, that we will be in imminent danger of losing our reputation as producers of high-class horses, which we have earned, through careful selection and breeding, in many of the markets of the world today.

It is not proposed or desired that such restriction should be imposed as would practically prohibit the importation of a class of horses fitted for the ordinary work of the farm. It is fully realised that owing to the large immigration which is today filling the Canadian North-West and which promises to increase rather than decrease in volume, every precaution should be taken to ensure that the present settlers and those who are to come should be able to purchase their work horses at a price not exceeding those prevailing at the present time. The measure of restriction asked for, namely, the imposition of a minimum valuation of \$75 per head, would if applied, merely have the effect of shutting out an inferior class of horses which, it is admitted, are not powerful enough, or in any way physically fit to perform the ordinary work on the farm.

It has been stated that the effect of imposing a minimum valuation would result in increasing the price of farm horses of the west. Those who are thoroughly conversant with the conditions existing there feel convinced that such an assertion is absolutely groundless. The bulk of the horses brought into Canada today consists of whole herds of bronchos from Wyoming, Montana and Oregon ranges, that have been previously picked over by United States buyers, who have selected from them all the workable animals, which find their way into Chicago and other eastern markets.

It is these culs and misfits we desire to keep out of the country. Many of the horses brought in from the States are probably of a very fair class. Such horses sell in the west at from \$85 to \$150 per head. These are purchased by *bona fide* farmers in Canada for light driving, herding and other purposes. This demand, however, can be more than supplied from the Province of British Columbia, where such horses are raised in considerable numbers and where the local market is absolutely glutted. In the North-West Territories the conditions are precisely the same. It is also understood that the Indians throughout Western Canada own no less than twenty thousand head of ponies and inferior light horses. It is, therefore, evident that in addition to exercising a most vicious influence by lowering the standard of Canadian horses, this importation also destroys the sale of a class of horses now already too plentifully raised in Canada. In addition to this source of supply of low grade horses there is always bound to be a large proportion of misfits, even where the breeding operations are conducted in the most careful manner, and it is also important that a fairly renumerative market should be available for this class of animals.

Good men for farm labour are generally at a premium in the west, and actual experience has shown that a prospective settler works for wages until he has acquired capital enough to purchase his farm outfit, including team suitable for farm work. No man need, therefore, be poor enough to purchase work horses of a class that, in course of time, is bound to make him poorer than when he started. In any event, the bulk of settlers coming into the west bring with them their full allowance of horses, duty free, which is ample for their purposes, and afterwards leaves them the balance available for sale.

It is estimated that at least 75% of the inferior horses brought into Canada are destined for Manitoba and the North-West Territories, but a large number also find their way into Ontario and the eastern provinces. A great number of worthless Mexican ponies have been sold in Ontario at prices averaging less than \$30 per head. At a sale of "Kansas Bronchos," held in Galt recently, the average price realised was about \$40.00 per head.

One of the most fatal effects of the unrestricted importation of horses from the range States of the American Union is the wholesale introduction of contagious diseases. It is a matter of notoriety that every contagious disease horses suffer from throughout western Canada today was originally brought in with horses from the United States. At the present time a large area of country, comprising Alberta and Western Assiniboia, is under quarantine owing to mange, entailing enormous loss to horse breeders and farmers and large expenses to the Dominion Government in its efforts to cope with the spread of the contagion. The disease now exists throughout the State of Montana in a great many herds of horses of such low quality and value that the owners do not feel warranted in incurring the expense incidental to taking the proper measures to eradicate the disease, but are at any time prepared to sell such herds for exportation to Canada at a nominal price per head. The present serious outbreak of mange in the west is directly traceable to the State of Montana, and owing to the peculiar nature of the disease, it will be almost impossible to guard against further diseased herds being brought into Canada as long as we permit the present indiscriminate importation to continue.

The Hon. Mr. Fisher, Minister of Agriculture, replying for the Government made the following statement:

I understand that you are asking for the imposition of a minimum valuation on horses, not as a matter of protection to the industry of the country, but are asking it as a protection to horse breeding. (Cries, hear hear.) It therefore comes under a different category from ordinary requests made to the Government with regard to tariff matters, and I think it has in that way a force of appeal of a different character from the ordinary demand in regard to tariff legislation, and I confess that I personally sympathise very much with the force of the appeal. It is, however, a rather new departure. It would be a new departure in tariff regulation and our tariff law that the value of a particular class of importation should be fixed. I know that at the present time there is no such ruling in our tariff. It would be a new departure in our tariff legislation, but I think that it could be fairly defended and fairly urged on the ground that these animals will seriously hurt the breed of all our animals in Canada.

I would venture to suggest as one who has studied the question for some time because it was brought to my attention a good while ago, that it might be better to absolutely prohibit the importation of the class of animals which we think are hurtful to the horse industry of this country, rather than simply try by a customs trick to keep them out. Take the bull by the horns and say frankly and fairly that a certain class of animals are of such a character as to destroy, or at any rate, seriously hurt the breeding stock in this country, and that it is not in the interest of the people of Canada, or the stock breeders, or the people who handle stock in Canada to own these animals at all. That might be fairly said with regard to stallions and I think with regard to mares; of course it could not be said with regard to geldings. Whether it would be best to adopt that plan is a matter which would have to be discussed. Personally I would be in favour of treating the subject in the same way as they do certain posters, sheets and publications which are contrary to the good morals of the country, and, therefore, we keep them out, and would be in favour of saying certain animals were so hurtful it would be advisable to keep them out altogether.

I am pleased to be able to state that the Dominion Government has at last seen fit to deal with this grievance in a practical manner. Stallions and mares of less value than \$50.00 each have by resolution been added to the schedule of prohibited goods. This practically has the same effect as imposing a minimum valuation, and in addition goes a step further and prohibits entry entirely.

Such regulations as the above are, however, often honoured more in the breach than in the observance, and I have, therefore, taken some little trouble to ascertain whether the spirit of the law was actually carried into effect and I am pleased to state that several instances have come to my notice where entry into Canada has been absolutely refused bands of inferior mares since the regulation went into operation. There has also been a notable falling off in the total importation of horses from the south, which will be quite apparent when the statistics for the current fiscal year are published.

It will be noticed that the Dominion authorities only partly met our representations, the new regulations applying to stallions and mares only. Geldings may still be brought in at a minimum valuation of \$25.00 per head. In view of the fact, however, that the bands that have hitherto been imported have been composed largely of mares, the protection afforded is fairly complete.

Remount Commission.

As intimated in last year's report an Imperial Remount Commission consisting of Col. the Hon. F. Lawley and Veterinary Major Moore visited the west last summer and the undersigned accompanied them through Alberta. It is understood that their recommendation to the War Office was in favour of establishing a remount depot on the C.P.R. main line where young horses would be purchased and handled and when fit for work shipped to Great Britain. So far no further action has been taken

on the matter by the War Office. Both officers were profoundly impressed with the possibilities of Alberta as a horse producing country.

Horse Fair.

In pursuance with motion passed at the last annual meeting your directors made arrangements for a horse fair at Calgary on the 4th, 5th and 6th of April and it was also decided to hold the annual Stallion Show at the same time. The following rules were adopted:

1. The management will be under the control of the Executive Committee of the Territorial Horse Breeders Association.
2. Entries of stallions shall be limited to animals registered in a studhook recognised as reliable by the Dominion Department of Agriculture.
3. Entries of foals shall be limited to animals foaled during the year 1904. For the purebred classes foals must be registered in a studhook recognised as reliable by the Dominion Department of Agriculture. Foals entered in the grade classes must be sired by a stallion registered in a reliable studhook.
4. A fee of (\$1.00) one dollar will be charged for each entry which must accompany the application.
5. Entries positively close on the 20th of March.
6. First and second prizes will be offered in each class and third prize where the entries exceed five. Suitable championships for the various breeds will also be given.
7. As the association is desirous of encouraging competition for prizes of a permanent character, which will be of lasting benefit and advantage to the winner as well as the donor and the association, all prizes will take the form of suitable plate (engraved) according to the winners selection from catalogue furnished by the association. Winners may, by making special application to the manager, obtain a cash equivalent for prizes won on the basis of the total amount less 35 per cent.
8. Where the total number of entries in any section is less than three, the management reserves the right to amalgamate the section with any other section in the same class.
9. Programme and prize list will be issued prior to the date of the show.
10. No unsound horse will be awarded a premium.
11. The age of horse to be computed to the first of January.
12. Every care will be exercised by the management to prevent injury to or loss of property, but the association will not be in any way responsible for whatever loss or damage occurs. All persons entering horses for competition must assume the entire risk during transit and while on the grounds.
13. The decision of the judges as to the relative merits of the animals shall be final.
14. Protests against the award of prizes on the grounds of noncompliance with the foregoing rules must be lodged with the secretary within ten days after the date of the show and must be accompanied by a fee of one dollar which will be returned if the protest is sustained and forfeited to the association if the protest proves groundless.
15. No animal will be allowed on the grounds which is not entered for the fair.

Stallion and Foal Show, Calgary, May 10th, 1904.

List of Prize Winners.

CLYDESDALES.

Stallions, Four Years and Over.

1st. Vanoras Pride, 11224.....	John A. Turner, Calgary.
2nd. Charming Prince, 2793	R. W. Meiklejohn, Cochrane.
3rd. Matchless, 2846	W. Beresford, Calgary.
4th. Royal Verdict, 10891	John A. Turner, Calgary.
H.C. Still Better, 2943	W. G. Adams, Maple Creek.
C. Pride of Eastfield, 2828 ..	Jas. Clark, Crowfoot.

Stallions Three Years Old.

1st. Redburn, 11872	W. H. Edge, Cochrane
2nd. Prince of Barnuchany, 11855	Frank Bedingfield, Pekisko.
3rd. Douglas, 3009	Industrial School, Davisburg.
4th. Bonnie Doon, 4210	Pugh & Livingstone, Okotoks.

Stallions Two Years Old.

1st. Activity Prince, 3670	William Moodie, De Winton.
2nd. Patricks Prince 2nd, 3468	Jas. Clark, Crowfoot.
3rd. Crystal Prince	Bryce Wright, De Winton.

CLYDESDALE FOALS, 1903.

1st. Solitaires' Matchless	John A. Turner, Calgary.
2nd. Meadow Lark King	Harold Bannister, Davisburg.

SHIRES.

Stallions Three Years and Over.

1st. Linder II, 19766	Livingstone, Pugh and Hoadley.
2nd. General Roberts, 363	A. H. Eckford, High River.
3rd. Light of the West, 5690	Ewart & Hannah, Sintaluta.
4th. Headan Magnet, 9540	W. Faulkner, Moosomin.

PERCHERONS AND BELGIANS.

Stallions Three Years and Over.

1st. Pothin, 24050	Raoul Pirmez, Calgary.
C. Intendant, 28047	W. B. Thorne, High River.

CHAMPIONSHIP.

Best Heavy Draught Stallions

1st. Orpheus, 3824	E. J. Whelen, De Winton.
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THOROUGHBREDS.

1st. LoFrasco (imp)	Herbert W. Husband, Calgary.
2nd. Lord Glenn, 22652	R. Bevan, Calgary.

GRADE CLYDES FILLY FOALS.

1st. Fancy May	R. W. Robinson, Springbank.
2nd. Peggy	Hugh McPherson, Calgary.

GRADE CLYDE FOALS.

1st. Charlie	Jos. McPherson, Calgary.
2nd. MacNabb	Harold Bannister, Davisburg.

STANDARD BREDS.

Stallions, Four Years and Over.

1st. Alvolio	George Bailey, Calgary.
2nd. Eustace, 1054	George S. Short, Calgary.

COACH BREEDS.

1st. Arleguin.

HACKNEYS.

Stallions Three Years and Over.

1st. Glenlyon, 4788 W. L. Christie, High River
 2nd. Heath Rosador, 7854 C. Kinniburg, Calgary.
 C. Sky Pilot, 147 Duncan Clark, Crowfoot.

Stallions Two Years and Under.

1st. Agility, 148 William Moodie, De Winton.

Contributors to Prize List.

P. Burns, Calgary	.....	\$50.00
W. R. Hull, Calgary	.....	25.00
Imperial Bank	.....	25.00
Bank of Montreal	.....	25.00
Union Bank	.....	25.00
Bank of Commerce	.....	25.00
Molsons Bank	.....	25.00
Alberta Hotel	.....	25.00
Royal Hotel	.....	50.00
Great West Saddlery Co.	.....	25.00
Riley & McCornick	.....	25.00
D. H. Andrews, Crane Lake	.....	25.00
Peter Talbot, M.L.A., President Territorial Cattle Breeders Association	.....	25.00
John A. Turner, President Horse Breeders Association, Calgary	.....	25.00
Calgary Brewing & Malting Co.	.....	25.00
Grand Central Hotel	.....	10.00
Cushing Bros. Ltd.	.....	10.00
Calgary Furniture Co.	.....	10.00
Calgary Saddlery Co.	.....	10.00
Copas & Emerson, Calgary	.....	10.00
R. B. Bennett, M.L.A. Calgary	.....	10.00
J. J. Young, M.L.A. Calgary	.....	10.00
Ashdown Hardware Co., Calgary	.....	10.00
A. McBride & Co., Calgary	.....	10.00
I. S. G. Van Wort, Calgary	.....	10.00
Calgary Cattle Co.	.....	10.00
Commercial Hotel, Calgary	.....	10.00
Palace Hotel, Calgary	.....	10.00
G. E. Jacques, Calgary (goods)	.....	5.00
Drs. McKidd & Stewart	.....	5.00
C. F. Conner, Calgary	.....	5.00
Skinner & Miquelon	.....	5.00
T. A. Hatfield, Calgary	.....	5.00
Neilson Furniture Co., Calgary	.....	5.00
Calgary Milling Co	.....	5.00
J. D. Norish, Bain Stables	.....	5.00

Association Medals.

A new departure was made by your directors in having a die made and offering association medals at our annual spring show and also at the summer fairs held at New Westminster, Kamloops, Calgary, Edmonton and Regina. The object is to get into closer touch with the various fairs.

Market Conditions.

The demand for light horses is still slack and spasmodic. The heavier classes were in good demand during the year, although, not as

freely as the year before. Breeders had looked for a keen demand from contractors or railway and other construction, but most of these firms brought a large number of horses and mules in from the United States and were not as frequent buyers as had been anticipated. The depression in mining and lumbering in the Province of British Columbia had a very marked effect on the demand for heavy drafters. However, the final result was satisfactory as a good price seemed to be offered for the right class of draft teams. The decline in importations from the States ought to make our large stock of low grade horses worth a reasonable price within the next year or two.

Political Change.

Before this report is submitted a change will be imminent in the political constitution of the Territories, which may also imply corresponding changes in the constitution of the Territorial Horse Breeders Association. The present area covered by this association has been divided into two provinces and in selecting a new name the future scope of the association must be taken into consideration.

The change referred to will confer grave responsibilities on the various Territorial live stock associations as well as affecting their internal administration. The new Province of Alberta, with which our association as now constituted will probably be more closely identified, will on the coming into effect of the Provincial Act be face to face with the task of agricultural organisation. The Territorial live stock associations, being the most important agricultural organisations in the west, will be expected to safeguard as far as possible the interests of breeders and agriculturalists generally under the new order of things.

Retrospective.

As this is the last report of this association, at least, under its present name, the occasion, seems appropriate for a few retrospective remarks. It is with unmingled satisfaction that one contemplates the six years of active work that have intervened since the organisation of the Territorial Horse Breeders Association in the year 1899. The imposition of a minimum duty on horses entering Canada which has recently gone into effect after years of agitation and active work, which finally spread over the entire Dominion is an accomplishment that we may well feel proud of. Our success in this matter is an event full of encouragement and a tribute to organised agriculture. The splendid stallion legislation now on the statutes of the Territories followed resolutions to that effect emanating from this association. The Canadian National Live Stock Convention was formed after this association had urged its speedy organisation. A half rate on purebred horses over western railways was granted recently partly as a result of representations by the association. The detail arrangements in connection with the operations in the west of the Imperial Remount Commission purchasing horses for the war in South Africa were entirely in our hands and resulted in a considerable expenditure for light horses for which there was little or no demand at the time. Many other questions affecting horse breeders of more or less importance have been dealt with generally successfully. Under the circumstances I do not feel

that it is necessary to apologise for our past record and can only express the hope that the new organisation, which must now formally be called into existence, will meet with the same degree of encouragement and support at the hands of the breeders and Government as has been accorded the now defunct Territorial Association and to which has been in no small measure due the success that has been attained.

Respectfully submitted,

CHARLES W. PETERSON,
Secretary and Managing Director.

APPENDIX C.

TERRITORIAL SHEEP BREEDERS' ASSOCIATION.

Officers for 1904-5.

President	G. W. Quick, Maple Creek, Assa.
First Vice President	J. A. Turner, Calgary, Alta.
Second Vice President	Bryce Wright, De Winton, Alta.
Secretary-treasurer and Man. Director	C. W. Peterson, Calgary, Alta.

Directors :

J. D. Wilson	Forres, Assa.
Jas. McCaig	Lethbridge, Alta.
S. W. Paisley	Lacombe, Alta.
Fred Grant	Walsh, Assa.
Ed. Pearson	Maple Creek, Assa.

Auditor :

F. R. Exham	Calgary, Alta.
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Ex Officio Directors :

Hon. Dr. Elliott	Commissioner of Agriculture, Regina, Assa.
F. W. Hodson	Dominion Live Stock Commr., Ottawa, Ont.

Executive Committee :

G. W. Quick	Maple Creek, Assa.
J. A. Turner	Calgary, Alta.
Bryce Wright	De Winton, Alta.
C. W. Peterson	Calgary, Alta.

REPORT OF THE SECRETARY.

MR. CHAIRMAN AND GENTLEMEN.—I submit herewith the third annual report of the Territorial Sheep Breeders' Association.

Market and Range Conditions in 1904.

I had occasion in my report for 1903 to comment on the disastrous effects of untoward weather conditions and the general depression which prevailed in the sheep market resulting in some of the largest flocks in the country passing into the hands of the butcher. I am pleased to state that the record of the year 1904 is in every respect much more encouraging. Wool has been selling at excellent prices and the demand for mutton has increased. Altogether flock masters have enjoyed a year of general prosperity, which has done much in the way of putting the sheep industry of the west on a more solid foundation than ever.

Ram Sale.

As the efforts of the association to establish a ram sale have not hitherto met with any considerable encouragement it was decided to

drop this feature of our work during 1904 in the hope of being able to take the proposition up again at a more favourable time. The production of purebred rams in the Territories had also fallen off in volume in sympathy with the depressed condition of the wool and mutton market, so that it was very questionable indeed whether a sufficient number of rams bred in the west could have been gathered to justify a sale last year.

Protective Duty on Wool.

At the last annual meeting a general discussion on wool values took place, the concensus of opinion appearing to be, that compared with flock masters in the Western States. Canadian wool growers scarcely get more than seventy-five per cent. of what the wool is worth. The customs' act came in for the severest criticism. It was freely asserted that unfair as the present fiscal regulations regarding wool duties were to the producer, an honest attempt was not made to administer the law fairly. Every loop hole was provided in the interest of the importer of raw wool and wool material and the flock masters were not receiving due consideration. The following resolution was carried :

Whereas, the flock masters of Canada have, since the imposition of the Dingley tariff in the United States, been unable to dispose of their wool at remunerative prices, the average value of raw wool in Canada being generally little more than one half its selling value on United States farms and ranches ; and

Whereas, ten million pounds of wool is annually imported into Canada, which could easily, under encouraging economic conditions, be produced on the ranges of the North-West Territories ;

Therefore, be it resolved that the Territorial Sheep Breeders' Association, in annual meeting assembled, respectfully begs to impress on the Dominion authorities the necessity which exists for applying the spirit of the Customs Act, providing a duty on wools entering Canada on classes which are produced in the country ; and

That in the opinion of this meeting fine wools forthwith should be removed from the free list, as such are now produced in large quantities in the Territories ; and

That this meeting would respectfully suggest that woollen rags should be subject to an import duty of ten cents per pound and shoddy twenty-five cents per pound ; and

That the present faulty classification of wools in the Customs Act be revised and made clear.

While I am pleased to be able to record a distinct advance in wool prices, such advance has not by any means been in keeping with the price which would appear to be justified in view of wool values south of the line. Moreover, the increased price is wholly due to outside influences and will doubtless be reduced to the old impossible level as soon as the market regains its normal state.

During the past five or six years the wool supply has been gradually decreasing. At the same time the world's wool consumption has not yet been reduced to the same extent as the reduction in the supply of wool. That this is the case is shown by the universal testimony that stocks are lighter the world over than they have been known to be at this time of the year for twenty years. It is estimated by the highest authority that the shortage in the United States will not be less than 40,000,000 pounds. Adding together the more conservative estimates of the various shortages in the world's wool supply, it is no mistake on the side of extravagance if we put it at from 130,000,000 to 150,000,000 pounds (the world over) less than the supply of the previous year.

The drouth in Australia, which lasted seven years and which culminated in 1902, caused losses of sheep that were unparalleled. Alongside of this great shrinkage in the Australian clip there has been a reduced clip from South Africa, due to the war, and to some extent to the effect of the drouth. Likewise a heavily reduced South American production is mentioned with loss of at least forty thousand bales (40,000,000 pounds), and it is well assured that there is no possibility of wool supplies for the next twelve months materially exceeding those of the past year.

Determined efforts are being made by the woollen manufacturers of Eastern Canada for increased protection and it is stated that there is a disposition on the part of the Government to consider the proposal. The following extract from the Raymond Chronicle is of interest.

The Alberta Wool Growers Association held a meeting at Sterling and the whole clip of the members of the association comprising some 250,000 pounds, was sold at 14·10 cents a pound. The purchasers were New York parties who were represented by the manager of the Bank of Montreal in Raymond. They expressed a willingness to take 500,000 pounds at the same price. Shipments are to be commenced immediately. The highest price realised by the wool growers of this district in past years was twelve cents per pound, so that the improved condition of the market means considerable gain throughout the Canadian North-West. The disappointed bidders at Sterling have started out to secure a supply at Medicine Hat, Grassy Lake and other markets.

We are here told that American woollen manufacturers are able to come to Western Canada, and in the face of the Dingley Tariff, pay 2·10 cents more for wool than Canadian buyers can offer.

The undersigned has received information to the effect that a commission will shortly visit the west with a view to inquiring into tariff questions. A statement is now being prepared dealing with the whole question of duties on raw wool which will be submitted as evidence in support of the demands made by the association.

Marking of Textile Fabrics

The undersigned had the honour of representing the association at the meeting of the First National Live Stock Association which assembled at Ottawa in March last when the matter of the proper marking of textile fabrics was brought up. The subject in the last annual report was fully dealt with. The proposal of the association was to ask for the marking of all textile fabrics showing the percentage of wool, shoddy and the cotton in the goods. On further investigation I have been led to doubt the possibility of determining correctly the percentage of shoddy in cloth without resorting to a very elaborate chemical process. The detection of cotton, however is a very simple matter and under the circumstances and after conferring with eastern sheepmen I decided when submitting our proposal to the convention to limit our demands in respect to the marking of textiles to showing merely the percentage of wool and of cotton. The shoddy question will have to be dealt with by tariff legislation and a resolution has already been passed by the last annual meeting asking for this measure of relief. At the said meeting the following resolution was also passed;

That this association would earnestly urge upon the Dominion authorities that no time be lost in carrying out the recommendations of the National Live Stock Convention of 1904, to the effect that the Dominion Government be petitioned to cause enquiries to be made to ascertain, whether, without inflicting

undue hardship, regulations could be enforced, compelling manufacturers and dealers to mark all textile fabrics, indicating whether they are composed wholly of wool or not; in order that the convention of 1905 may discuss and act upon any further information that may be brought before it.

I regret to have to state, that the convention of 1905 met without taking action on this important subject. In compliance with the wishes of the directors, the matter will again be taken up at the next convention.

Fat Stock Shows and Sheep Feeding.

At the last annual meeting the scheme of the Territorial Department of Agriculture, respecting the organisation of fat stock shows in the west came up for discussion. In the first official announcement sent out from the department no mention had been made of sheep, but as soon as the matter was brought to the attention of the Hon Dr. Elliott, provision was at once made for sheep classes. The scheme was heartily endorsed by the meeting and led to a general discussion on the subject of the grain finishing of range sheep. It was pointed out that the time was fast approaching when arrangements must be made to initiate a feeding industry in the west. The slipshod and suicidal methods of marketing our live stock which had prevailed up to the present time could not survive long. The proposed fat stock shows was the first attempt to create a practical interest in the subject and deserved the united support of breeder and feeder alike. The following resolution then submitted was carried :

That the Territorial Sheep Breeders' Association desires to place on record its hearty approval of the action of the Hon. Dr. Elliott, Commissioner of Agriculture, in advocating and encouraging the establishment of fat stock shows in the Territories and that this meeting respectfully suggests that classes should be provided for fitted lambs, ewes and wethers of the long wool and medium wool types.

A further resolution was also carried dealing with the subject of grain finishing our sheep, as follows :

Whereas, the time has undoubtedly come when the live stock interests of Western Canada demand that almost immediate provision should be made for grain finishing sheep during the winter, either on the range or western farm, whichever may be found to be the most profitable practice; therefore, be it resolved:

That the Hon. Sydney Fisher, Dominion Minister of Agriculture, be petitioned to authorise his Live Stock Division to cause enquiries to be made in respect to the economic phases of sheep feeding at the great feeding centres of the Western United States in order to ascertain, whether, in view of the meat values, market conditions, feeding materials and climatic conditions of the Canadian West, the industry is likely to be profitable here, and if so, to publish the results of the enquiry, including information as to the most approved methods of feeding and most profitable feeds available.

The feeding of sheep for the mutton markets has become an established industry throughout many of the western grain producing states. Especially is this true of Nebraska, Kansas, Iowa and Missouri. The nearness to the western range sheep country, the large supply of feeds, hay, grasses, etc., besides the abundant crops of grain that these western farms are producing makes sheep feeding an inviting proposition for the farmer.

The sheep feeding industry is in a great measure carried on by large feeding plants where several thousand sheep are yarded at the beginning of the feeding season, and kept confined until fully fatted for the market.

The magnitude of this industry can better be described by the numbers fed in a single season, and the extent of single feeding enterprises. In Nebraska the average annual output of the feed yards would be approximately a half million sheep. These sheep are mainly purchased in large droves during the summer season on the ranges of Montana, Wyoming, Utah, Colorado and New Mexico and brought to the feeding farms in the early autumn so as to be well established by the time the new grain crop is available.

It is not an uncommon thing for the Nebraska feeder to have in his yards 10,000 to 20,000 sheep, and as many as 30,000 have been fed in a single season on one feeding plant. Iowa is rapidly increasing in her sheep feeding industry and now takes thousands of the range sheep from the south Omaha market to be finished for mutton.

The great sheep producing district of the United States is in the states west of Nebraska, and the cheapness of handling flocks in these range districts encourages a continuance of the sheep growing industry in these localities. This means that the present sheep feeding industry for Nebraska, Kansas, Iowa and Missouri will not only remain in its present high standard of quickly and profitably finishing these range sheep for mutton, but will be greatly increased in magnitude as the demands of the business may require.

The sheep producing states under the last census report were as follows: Montana with 6,170,483, Wyoming with 5,099,613, New Mexico with 4,899,487, Utah with 3,818,423, Idaho with 3,121,532, Oregon with 3,040,291. No other state reaches the three million mark in sheep population except Ohio, which is the fourth state in the list of states having 4,020,628 sheep. The six western states named represent 26,149,829 sheep which with the addition of the flocks of California and Colorado represents one half the entire sheep population (61,605,811) of the United States.

We have much to learn from a study of sheep conditions in the states, which must to a great extent, serve as a pattern to us. The westward movement of sheep fattening ventures there is specially interesting to Territorial flockmasters. The conditions in the state of Montana are almost identical with the westerly portion of the Territories. The only difference is that agriculturally we have been vastly more generously dealt with than that state. Yet in 1904 there were 250,000 sheep on feed in Montana, while less than 5,000 were fed in Alberta and Assiniboa. Mutton prices and consequently sheep values, will not be on any permanently satisfactory footing until we profit by the lessons taught us by United States flockmasters and feeders and go and do likewise.

Association Medals.

Association silver medals were offered for competition at the recent Fat Stock shows in the championship classes. The same policy has been adopted with success by the other western live stock associations,

DEPARTMENT OF AGRICULTURE

Extension of Sheep Grazing Districts.

The attention of the annual meeting was called to the steps that had been taken by the local associations to secure an extension of the sheep grazing area and it was asked that the Territorial Association exert its influence in the matter. It was, however, felt that sufficient data was not available to deal with the matter at the meeting and it was agreed to have the case submitted to the undersigned who would then take the matter up with the Department of the Interior. This was accordingly done and the department now has the representations under consideration.

Respectfully submitted,

CHAS. W. PETERSON,
Secretary and Managing Director

APPENDIX D.

TERRITORIAL PUREBRED SWINE BREEDERS' ASSOCIATION

Officers for the year 1904-05.

President J. B. Harrington, V.S., Lacombe, Alta.
 First Vice President O. E. Brown, Calgary, Alta.
 Second Vice President J. A. Turner, Calgary, Alta.
 Secretary-Treasurer and Man. Director C. W. Peterson, Calgary, Alta.

Directors :

P. Talbot, M.P. Lacombe, Alta.
 J. C. Pope Regina, Assa.
 J. B. Bright Macleod, Alta.
 A. B. Potter Montgomery, Assa.
 W. R. Adamson Moosomin, Assa.

Ex officio Directors :

Hon. Dr. Elliott, Territorial Commissioner of Agriculture.
 F. W. Hodson, Dominion Live Stock Commissioner.

Auditor :

F. R. Exham Calgary, Alta.

Executive Committee :

J. B. Harrington Lacombe, Alta.
 O. E. Brown Calgary, Alta.
 J. A. Turner Calgary, Alta.
 C. W. Peterson Calgary, Alta.

I have much pleasure in submitting herewith my second annual report upon the transactions of the Territorial Swine Breeders' Association for the year 1904.

Records

When the records for the registration of purebred swine under the auspices of this association were first organised, it was with the tacit understanding that if at any time the various swine records of Canada were nationalised, the western records were to be handed over to the central authority providing an equitable arrangement could be arrived at respecting full recognition of the work already done by this association.

The National Convention

The national convention met at Ottawa in March 1904, and a vigorous attempt was made to effect nationalisation of all Canadian Live Stock records, which, however did not bear immediate fruit, although the object was accomplished later. The following is the main features of the general agreement proposed by the Dominion Department of Agriculture when assuming the administration of responsible live stock records.

1. That..... does hereby transfer to the Dominion Department of Agriculture all records and books of registration for pure bred stock at present under its proprietorship.

2. That in accordance with this agreement these records shall be closed to registration after the First day of May in the year one thousand nine hundred and five.

3. That the Dominion Department of Agriculture, subject to the approval of each of the Nationalised Record Associations, shall cause to be recorded free of charge upon the application of their respective owners, all living animals registered in the.....books of record, up to the date on which these records are closed to registration, providing said animals are eligible for registration in the corresponding nationalised book of record, recognised as reliable by the Dominion Department of Agriculture.

4. And it is understood and agreed that in case the scheme of nationalising the records, now under consideration by the Dominion Department of Agriculture should fail, this agreement shall become null and void.

The agreement in question appears to amply protect the interests of the numbers of the association who have availed themselves of registration in the western record and can apparently safely be accepted.

Fat Stock Show

Since the last annual meeting a Fat Stock Show has been provided for by the Territorial Department of Agriculture. Your executive had the various swine classes under consideration and the undersigned presented their views at a meeting held in Winnipeg to arrange the prize list at which were present Hon. Dr. Elliott, F. W. Hodson, Dominion Live Stock Commissioner, J. R. C. Honeyman, Deputy Commissioner of Agriculture, and Geo. Harcourt, Superintendent of Fairs and Institutes.

Pasturing of Hogs.

Some experiments have been initiated in the vicinity of Calgary to ascertain the comparative value of rape, tares, wheat, oats and barley for hog pasture in the west, particularly to determine the earliest pasture crop available. While sufficient data is not yet available to form any reliable conclusions, it may be stated that rape and tares have not been found as satisfactory as had been expected and it is evident that some other green crop must be resorted to for early summer pasture, such as green wheat or winter rye.

National Live Stock Convention.

The undersigned represented the association at the National Live Stock Convention, which was held at Ottawa last year. In addition to the record question various other subjects of importance to swine breeders were brought up and discussed. A protest was entered against the importation into the West of live hogs as settlers effects without the imposition of the usual quarantine requirements. This matter was subsequently brought before the Ministers of Agriculture and the Interior and relief was promised. Owing to the prevalence of infectious diseases among swine south of the line, very serious complications might easily arise unless stringent measures are adopted.

New Organisation.

The time is fast approaching when the Territories will be clothed with provincial powers and responsibilities and when that has been accomplished this association will require to change its constitution to fit the new order of things.

Respectfully submitted,

CHAS. W. PETERSON,
Secretary.

APPENDIX E.

TERRITORIAL NATURAL HISTORY SOCIETY.

Officers for 1905.

President Henry George, M.R.C.S., Innisfail, Alta.
 Vice President F. H. Wolley Dod, Millarville, Alta.
 Second Vice President N. B. Sanson, Banff, Alta.
 Secretary-treasurer T. N. Willing, Regina, Assa.
 Directors The presidents of local branches.

Ex officio director :
 The Commissioner of Agriculture.

Curators :
 P. B. Gregson, Blackfalds; J. Boyce, B.A., Calgary; and T. N. Willing,
 Regina.

ANNUAL MEETING.

The second annual meeting of the Territorial Natural History Society was held at Calgary in the church of the Redeemer schoolroom during the evening of the 30th December. In addition to residents of Calgary, members were present from Blackfalds, Innisfail, Millarville, Regina and other points. The chair was occupied by the president, Mr. Percy B. Gregson, who asked the secretary to read the minutes of the last meeting, and then delivered the presidential address, after which the financial statement was presented by the treasurer, and reports from the various branches were read by the delegates.

A number of cases of insects, books recently published and desirable natural history magazines were displayed. Papers were read on various subjects and were illustrated by appropriate specimens which were examined by the audience while discussion followed the reading.

The election of officers for 1905 was proceeded with and the meeting adjourned.

Address by the President Percy B. Gregson and report of the Blackfalds Branch.

It seems the natural course on the occasion of our annual meetings, to briefly review our progress. We have now arrived at our fifth year of existence as a society, for three years as an entomological society, and subsequently as an association embracing a very much broader field. Now the wisdom of thus enlarging our field will I think be shown to be amply proved by the reports of the progress of the local branches which together make the Territorial Natural History Society.

As an entomological society pure and simple there was always the difficulty of finding in this new country people among the settlers interested sufficiently in that particular branch of science to keep up a sustained enthusiasm. Large numbers of people who may not care at all for the study of insects are eager enthusiasts where birds are concerned. So there are many others who may not know much about birds but

mention to them something concerning mammals and you at once touch a sympathetic chord.

For a few years therefore we laboured on under the style of entomologists and entomologists only, a sort of mysterious cult under a name hardly understood by many a farmer, and, as it might seem to him, behind doors closed against everyone who was not a "scholar." I lay particular stress on the farmer because he it is really whom the society exists to benefit.

Well, labouring thus for some years, and holding at intervals meetings lectures and so forth, it was found that we were no nearer in touch with the farmer than at the beginning and then the Department of Agriculture proposed the extension of the objects of the society so as to include everything in the way of natural history, and the original society was reorganised by the formation of the present institution, with branches now at various points, in Regina, Innisfail, Blackfalds, etc., each having its local executive.

Now let us see the effect. Reports will I understand be submitted of the Innisfail and Regina work and I shall therefore only very briefly deal with my own experience. I find that it is not sufficient to label our work natural history, but it is necessary to draw the attention of the farmer specially to it in the way most likely to interest him. As soon as it became known that there was a museum being formed one of the first things offered was this stone which you see is an elongated spheroid flattened at each end and grooved round at the centre, evidently being an Indian tool for making pemmican. Another evidence of the attention this society is attracting is this little gift of a shell. You will notice that it is a univalve, having the spiral the reverse of the usual way. This was noticed by the finder and was the reason why he picked the shell up.

Passing now to insects a great impetus was given to the work of the society at Blackfalds by a lecture most kindly given by Mr. T. N. Willing in the spring. This he illustrated with the aid of a lantern, and recollections of the explanations are still fresh in the minds of the people. Another step forward is the display in the schoolroom of insects in glazed cases. Six of these were provided for Blackfalds by the society and are a very efficient way of attracting the interest of the young people to the habits of insects.

The existence of a natural history society in the Territories is also proving an incentive to many farmers to observe nature more closely, and note the habits and actions of birds. We learn for instance from reliable men that the last migration of geese and ducks was so late as November 29th, the latest on record. The society is apparently assumed by some to be omniscient, even dried apple peel with some scales adhering being brought to me lately to name the particular scale insect affecting it.

This then is a short review of the position of the society in Blackfalds. We have of course our museum, but so far as the entomological collection is concerned, very few new species of insects have been added, but a good number of unidentified para-sites (dipterous and hymenopterous) have been taken and several beetles including some rare unnamed *Dytiscidae* (*Dytisci* and *Agabi*). We have been most fortunate in this respect as an era of dry seasons seems setting in in Alberta and already many of the sloughs most prolific in water beetles are quite dry. We have also added a few *scolytids* and other wood boring beetles to our collection. In

connection with *scolitids* I have brought with me a Clerid, which has recently been imported and proves a deadly enemy to those destructive wood borers and is a means of saving to the timber owner much timber which would otherwise be destroyed by the borer. It is reckoned that the introduction of this Clerid beetle alone has saved and is saving to the lumber industry millions of dollars worth of timber. The entire absence of that unusually rare moth *Gynaephora Rossii*, which was so abundant in 1903 that in fact it was the most common of all caterpillars, being abundant on nearly every willow, is worthy of note as I could not by searching over a large area find one. The same thing may be said of the larvae of that handsome moth *A. gloveri*.

Farmers sometimes express an opinion that our winters are too severe for insect pests to become established, but we have only to remember the history of such pests as the Colorado beetle, the Hessian fly, the wheat stem midge or the pea weevil. All of these are exotics so far as Canada is concerned. The Colorado beetle came originally from the country west of Mississippi river and spread eastward, then crossed to Ontario, and is now found in the Territories and specimens found near Blackfalds are in our museum. The pea weevil was imported probably from England, where there is comparatively little frost and it is now one of the most destructive pests of Canada. All these insects have therefore been capable of adapting themselves to their environments.

This then is an outline of our work and in this occupation by being faithful and diligent in observing, and by being prompt in publishing the results of our observations, we shall build up a society whose work shall be counted as one of the greatest benefits to agriculture.

REPORT OF THE INNISFAIL BRANCH.

During last march about a dozen gentlemen of Innisfail and district met at the house of Dr. George and formed a branch of the Territorial Natural History Society, electing Mr. W. Geary as president and Dr. H. George as secretary-treasurer.

The only fee asked from the members was the one dollar for the parent society but we hope in the future a little may be forthcoming to form the nucleus of a library and that assistance may be given us by the society towards that end.

Four meetings have been held during the year, at which papers have been read, specimens shown and notes given.

The places of meeting heretofore have been the residences of the president and secretary-treasurer, but Dr. George having opened a Natural History Museum at Innisfail future meetings will take place there.

The form of the meetings has varied somewhat since the formation of the branch, but we have gradually settled down to a routine, examination of specimens, papers and addresses and discussion of same. Some very interesting specimens have been shown by the secretary and others. The secretary and Mr. F. M. Oldham have given very interesting addresses followed by discussions of the subjects handled. The verbal reports of observations and reports based on field notes were not the least interesting portions of our meetings.

It is proposed to shape our meetings during the winter months so that they may be preparatory to field work in the various branches

during the following summer, which will in turn provide material for indoor work and study next winter. In this manner it is hoped that we may be able not only to work up the interest in natural history, but to increase the number of members.

Wm. GEARY.
President.

REPORT REGINA BRANCH.

Insects injurious to crops have not been abundant during the past season, the only species complained of being the grain aphid, which was abundant in some fields of wheat and oats as will be seen from the following letters :

HAZEL CLIFFE, Sept. 5th, 1904.

GENTLEMEN.—You will find enclosed three heads of wheat on which you will find a specimen of small green insects or flies. I find that they attack both wheat and oats and are so numerous that they can be gathered in handfuls off the binder, there being as many as one hundred on a single head of wheat. They seem to be worse on the late grain. On the oats they gather in clusters on the small stem on which the oat hangs. Some have wings and some have not. I notice they are on some of my neighbors crop as well. I would like to know if this fly is likely to prove very injurious to the crop, and if it is what they call the "Hessian" fly. I have seen them last year but only in small quantities.

Yours truly,
W. M. GORDON.

DEAR SIR,—With this mail I am sending you some specimens of a green fly, or bng, which is very prevalent in this district. It hangs in clusters at the base of the kernel, also at the junction of the leaf and the stalk. In some instances oats are found in which the kernel has entirely disappeared. They are so numerous that on one occasion they stopped a binder (making the rollers so slimy that they would not carry the canvas) and in cleaning the machine we took them off literally in shovels full. We shall be grateful for a diagnosis, also advice as to what can be done, if anything, at this stage to check their ravages. Awaiting an early reply,

Yours truly,
F. CARR DUFTON.

This insect sucks the juices from the heads of grain and when plentiful has a tendency to prevent proper filling. No practical remedy has been found for dealing with this aphid as spraying our western wheat fields is out of the question. It is not usual however, for it to be abundant two seasons in succession in the same field, their increase being checked by minute parasitic flies which attack them. This aphid has been reported from various points in the Territories during the last few years.

Another aphid has affected the ash leaf maple causing the shade trees of Regina to have a very unsightly appearance from the exuding of honeydew by the insects and the development of a smutty fungus growth in it. The remedy for this is spraying with kerosene emulsion which destroys the aphid by contact with it.

A grove of this maple at Medicine Hat was completely stripped of its leaves by the lime-tree looper, *Erannis tiliaria*, Harris. These caterpillars when first noticed on 30th May were $\frac{1}{2}$ inch in length and full grown, about $1\frac{1}{2}$ inches, towards the end of June. They are of a bright yellow colour striped with fine black lines lengthwise of the body. The moths emerge about October, the females being wingless, the males having pale brown fore wings with darker markings.

A number of dark hairy caterpillars were received which had been collected about the middle of May on the prairie near Medicine Hat, where it was said they were exceedingly abundant. These appeared to be the larvae of an arctian moth of the genus *Apantesis*. On 30th May the writer had an opportunity of looking over the locality in question and found a great many of the caterpillars, but many of them were dead and others appeared dull and sluggish, indicating an unhealthy condition. About forty were collected but were found to have been affected by *Tachina* and other parasitic flies which emerged instead of the moth. The moths of a tent caterpillar, *Clisiocampa*, were noticed to be emerging in great numbers from cocoons in poplar groves near St. Albert, Alberta, about the 21st July. Many of the trees had been stripped of their upper leaves by the caterpillars.

During the season a number of insects of various kinds have been added to our museum, by breeding, by collecting, and by donations. I have specially to thank Dr. Fletcher, of Ottawa, and his fellow worker Mr. A. Gibson, for specimens of insects and for assistance in identification, and I may say the same of Mr. F. H. Wolley Dod and Mr. A. F. Hudson, who have assisted me with the *Noctuidae* and contributed many good specimens. The *Geometridae* in our collection have been named for us through the kindness of Rev. Mr. Taylor, of Westminster, B.C., and we now have fifty species of that group of moths. We are greatly indebted also to Mr. W. D. Kearnott, of New York, for his work on our *Microlepidoptera* of which he has named over seventy species, a number of them being new, descriptions appearing in the Canadian Entomologist. While not connected with the work of the Regina branch it may be well here to call attention to the list of the *Macrolepidoptera*, of Alberta, by Mr. F. H. Wolley Dod that has also been appearing in the Canadian Entomologist.

Observations of bird migration have been continued by Mr. Geo. Lang and efforts are being made to extend this work. As an aid, arrangements have been made for supplying "Chapman's Colour Key" and other bird books and magazines at a low price to members of our society. Dr. Jas. Fletcher has kindly presented to us a number of specimens of birds and it is hoped that this may prove the beginning of a representative collection of Canadian birds.

Your secretary had the privilege of attending the annual meeting of the Entomological Society of Ontario at London on the 26th of October, and there meeting many prominent workers in entomology and getting many hints of value in advancing the work of our society. Visits were also made to museums in Toronto, Ottawa and New York, which helped to a better knowledge of the methods of preparation and display of natural history specimens.

I respectfully submit the above report of the work done during the season.

T. N. WILLING,
Curator and Secretary.

REPORT of Treasurer.

Jan. 1, cash in hand.....	\$30.75	Jan. 1, express charges on slides	\$4.20
Membership fees for 1903.....	10.00	Feb. 18, printing.....	1.00
" " 1904.....	28.00	Feb. 19, rent of hall at Calgary	13.50
" " 1905.....	2.00	Oct. 28, cork .....	.90
Refund duty on slides	1.50	Dec. 9, printing constitution....	15.00
		Dec. 9, telegrams	1.30
		Dec. 30, supplies for Blackfalds museum	3.00
		Dec. 30, rent of hall, Calgary	5.00
		Dec. 30, cash in hand.....	28.33
	\$72.25		\$72.25

BUTTERFLY AND MOTH COLLECTING.

BY F. H. WOLLEY DODD.

I remember once reading a book entitled "The Agonies of Hanging" being a treatise describing graphically, and at considerable length, exactly what it felt like to be hanged, by one who had nearly been hung. Though I positively decline to entitle this paper "The Agonies of Moth Collecting," or even "The Ravings of a Butterfly Hunter," I will endeavour to describe, in as clear a manner as possible, what it feels like to be an entomologist.

It may perhaps be considered a superfluous statement, that a person who collects insects has from time immemorial been looked upon by the general public, if not by his intimate friends, as more or less of a freak, or even suffering from the malady weakness of intellect, ascribed by 'Poo-Bah' to the lovesick tom-tit immortalised by Gilbert and Sullivan in "The Mikado." In the face of such an admission, as one of that unlucky class myself, and moreover, one who glories in belonging thereto, I shall probably not be deemed capable of giving an authoritative and unbiased opinion, but in defense of my kind, I will not refrain from asserting that some of the sharpest witted, most interesting and soundest minded people I have ever had the pleasure of meeting, have actually been collectors of insects. The state—i.e., of entomology—is productive, it is true, of a variety of sensations under a variety of circumstances and according to the temperment of the individual, I had almost said of the patient, who has at times to endure a good deal of cynicism and scoffing, and will perhaps on some occasion overhear some comment such as this:—"Crazy on bugs. Oh yes, I believe he is, but he seems to be comparatively sane upon most other points." But the scoffers can seldom realise the endless amount of pleasure that the true lover of nature derives and is able to impart to others from his pursuit.

It is a very old saying, dating back as far as the time of one of the ancient Roman poets, that the man who has been able to discover reasons for facts, meaning by the phrase the man who has studied any branch of science, is to be counted happier than his nonscientific fellow creatures. Because he is able to turn his entire attention and interest for hours at a time to matters which fail to have any attraction for the majority, he does not necessarily, as many seem to believe, have to exclude entirely the ordinary affairs of everyday life, but he has become acquainted with a world altogether unknown to them. He has his hobby to occupy.

leisure hours when perchance they may be at a loss how to employ theirs. He finds pleasure where they know neither how nor where to seek it; he is happy with his *multum in parvo*—with the mountain which his pursuit enables him to discover in the outwardly apparent mole hill. I have at different times been asked many and various questions by the uninitiated about butterflies and moths, and the methods of collecting and preserving them, and as it is the subject of this paper to interest those who are of a sufficiently enquiring turn of mind to wish to hear about the where, when and how of the matter, the best method of expounding it will perhaps be to answer some of those questions most frequently asked.

One of the very commonest is perhaps, "What is the difference between a butterfly and a moth?" The differences are mainly those of structure or build, anatomical differences, not only in the winged or perfect insect, called *imago* in Latin, but also in the caterpillar and chrysalis, and are for the most part too technical to be of popular interest. The most obvious difference in structure is in the feelers, or *antennæ*, which in moths are of sundry and various forms, varying in different families and groups, hairlike or *filiform*, comb-like or *pectinated*, rat-tailed and file-like or *serrated*, usually tapering more or less towards the tip and though sometimes slightly thickened there, none are *clubbed*. The feelers of a butterfly are always *clubbed*, that is to say they bear a slight knob at the tip, and are never feathery or comb-like. It is a popular belief that butterflies are always bright coloured, and fly in the daytime, whilst moths are dowdy and dull coloured, and fly at night. Roughly speaking these ideas are correct, but there are many exceptions to the rule. Butterflies it is true are exclusively sun-lovers, very few kinds caring to fly on dull cloudy days, and I have never heard of an authentic instance of one flying at night. The vast majority of moths fly at night, never flying in broad daylight unless disturbed from their resting place, but still a large number fly quite freely in the daytime as well, and a few, like butterflies, are sun lovers rarely if ever flying in the dark. Butterflies have stiffer and stronger wings in proportion to their size than moths, and their underwings (for it must be remembered that butterflies and moths have four wings) are practically as strong, and of much the same colour and pattern as the upper, whereas moths have nearly always their hind wings flimsier and weaker than their fore, and except in the case of a few mostly day-flying species, it is only the fore wings which bear any distinct pattern or markings, but, to the eye of the ordinary observer at any rate, there are exceptions to these rules, and the most constant difference, as already stated, is in the clubbed feelers of the butterflies.

Another very common question is, "How long does a butterfly live?" Now, before any satisfactory answer can be given to this query, it must be understood by the inquirer that all butterflies, as well as moths, pass through four totally distinct stages: (1) the egg, (2) the caterpillar or *larva*, (3) the chrysalis or *pupa*, and (4) the perfect winged insect or *imago*. The duration of each of these stages separately, and all four of them collectively, varies enormously in different species, and even in the same species in different climates. In some instances it is only about two months from the time the egg is laid to the appearance of the butterfly, and the natural life of that butterfly may be, at the very shortest, two or three weeks. Or the same butterfly in a climate

like ours, may, if hatched in September or early October, fly for a week or two, and then become lethargic or comotose, after hiding itself under dead leaves or in some such place, going into hibernation as it is called, and wake up again in the following April or May, to enjoy life for another two or even three months after that, thus living as a butterfly for nine or ten months. Certain kinds habitually pass the winter in the above manner, others are quite incapable of doing so and may pass the cold months in the egg, caterpillar or chrysalis state, whichever may be their natural state at this time of the year, frost is incapable of destroying their life. In the case of some kinds, nearly three years elapse between the laying of the egg and the appearance of the insect in its fourth stage as a butterfly or moth, and then perhaps it is but two or three weeks longer before the creature dies a natural death. It not unfrequently happens that some caterpillars of a brood will grow quickly and produce perfect insects in a few weeks, whilst others of the same brood are slower and do not reach their final stage for six months or longer, passing the winter either as caterpillar or chrysalis. Instances have been known to the writer, though they cannot be said to be common, where after a brood of caterpillars have turned to chrysalids or pupæ in October, part of them have produced moths in the following April, the normal time, whilst the others have remained pupæ for a whole year longer, and emerged as moths seventeen or eighteen months after pupation, thus being a whole year behind their normal time, without any apparent cause, and this too in a very much milder climate than that of the Canadian North-West. So it may be said that the life of a butterfly or moth varies from two to three weeks to nine or ten months, and I have reason to suspect sometimes even eleven, whilst the whole life of an insect from the laying of the egg to the death of the imago produced by that egg varies from six or eight weeks to nearly three years.

"What do moths feed on?" is the next query which presents itself to my mind. I rarely if ever heard that question asked concerning butterflies, as nearly everyone knows they feed in much the same manner as bees gather honey, i.e., by sucking juices from flowers, which of course includes grass heads. Many, in fact most moths feed in exactly the same way, and there are a few flowers which rely for their fertilisation entirely upon the night visits of honey seeking moths. Decayed fruit, the sap exuding from the bark of some trees, and sugar or syrup are other favourite articles of diet. Some species, even of butterflies, have more depraved tastes at times, evincing a most inordinate fondness for farm yard manure, or even for dead animals. A well-known way of collecting the Purple Emperor butterfly, one of the greatest prizes to the British collector, is by keeping watch over a "well-seasoned" dead dog or cat in the neighbourhood of its haunts. The vast majority of night-flying moths have an uncontrollable passion for alcoholic liquors when procurable and I am not at all sure that they are always sufficiently law abiding to be strictly observant of closing hours, but that is a matter for the attention of the local licence inspector.

"How do you catch them, or handle them when caught?" are two other questions often put by those who want to know. The ordinary way of catching butterflies or "botherfleas" as the word is pronounced in one of the old country dialects, is by means of the net, which may be made of some soft muslin like material such as leno or mosquito netting. A chase

after a butterfly is rarely necessary, and far more can be caught by stealth and steady alertness. Indeed chasing is often quite impossible owing to the rough nature of the ground where some species fly, as for instance on the steep sides of mountains or even on the very highest peaks, for both butterflies and moths are found in such situations which are quite unknown at lower altitudes. When in the net, butterflies are best killed by a dexterous pinch of the thorax by the finger and thumb and this can be accomplished by a practised hand without in the least damaging the specimens. An insect has its chief nerve centre not in the head, but in the thorax, which in other respects corresponds to the chest of an animal, so that crushing the throat of an insect is almost equivalent to crushing an animal's head. Moths, however, owing to difference of structure, can rarely be killed by a pinch without risk of damage, but must be asphyxiated by poisonous fumes, such as cyanide of potassium, chloroform, prussic acid, or any such life destroying agent, the more rapid the action the better, so that the specimen will not have time to flutter about and damage itself. The methods of catching moths are more varied. As large numbers of them are attracted by light, a very convenient method of collecting them at night is to place a lamp near an open window, preferably of course in the country and if possible opening into a roofed verandah, with a white sheet hung from the ceiling to the floor on two sides of the lamp. That is to say, the sheet is hung behind the lamp and at about four to six feet from the window, thus forming a kind of three-sided box, two sides being formed by the sheet and the third by the open window. On the fourth side sits the collector with his apparatus, consisting of two or three killing bottles and several large pill boxes about an inch and a half to two inches in diameter, and, though it can hardly be considered as part of the apparatus, a novel or a newspaper. The literature he may occupy himself with in the event of moths being slow at putting in an appearance, or even not showing at all, as on cold or moonlight nights will not unfrequently happen. On chilly nights moths fly but little; but on clear moonlight nights a lamp has practically no attraction for them, though they fly if the temperature is not too low, lacking that dazzling effect that seems to draw them so unresistingly, sometimes in hundreds or even in thousands when the night is dark. As they come in they behave in various ways, according to their species or kind, and it is astonishing how quick an experienced collector can become at recognising a species by its behaviour directly it appears. There seems to be an individuality about the hum, the flight, the degree of liveliness, and many other little characteristics which at once bespeak the kind. The greater number will fly not against the lamp but against the sheet, anything white near a light seeming to have a special attraction for them, and they flutter up and down it for several minutes, occasionally resting or partially resting for a second or two, which enables the collector to get a good view of them and make sure of the species and condition, i.e., whether they are fresh and unworn, or whether they are rubbed by much flight, rough weather, or old age. The specimens desired can easily be captured by having one of the pill boxes placed over them as they flutter up or rest on the sheet and the lid clapped on quickly by a movement more easily accomplished than described, and the moth transferred at once to the killing bottles where in a very few seconds he is *hors de combat*. Another favourite way of catching moths is to take advantage of their fondness for the sweets mentioned previously, by smearing tree trunks,

fence posts, etc., with treacle, syrup, molasses, etc., though sometimes these baits seem to have no attraction whatever, at other times the moths come to them freely and the collector, carrying a lamp, can then box them as they sit on the treacle, as most kinds feed so greedily that they are slow to take wing when approached. A popular idea is that they stick to the treacle and can't get away. Should it be a little thick they occasionally do but the result is their complete ruination, to the disgust of the collector, for if a moth finds himself stuck by the leg to anything sticky he behaves like Brer Rabbit did with Tar Baby, and does not rest until the stickiness has him so completely in its grasp that further struggling is impossible and he ends usually by lying on his back in it.

"How do you preserve them?" and "isn't this climate so dry that they crumble to bits?" They preserve themselves, and the drier the climate the more completely are they preserved, provided of course they are not roughly handled and are protected from the living insect pests which would prey upon their dead bodies, by having naphthaline, camphor or some such thing kept in the boxes in which they are stored. For "small fleas have lesser fleas upon their backs to bite 'em, lesser fleas have lesser still and so *ad infinitum*," and this applies to the dead as well as to the living.

Insect collecting has frequently been condemned, especially by the weaker sex, on the grounds of cruelty. I could mention one well-known and popular novelist, who, in more than one of her books, speaks in scathing terms of an entomologist as a cold blooded feelingless monster, who tortures poor little butterflies by driving pins through them. I would remind such, that the collector as a rule FIRST KILLS the specimens THEN PINS them. Waiving the question of cruelty, to pin a butterfly alive is not an efficient means of killing it, and therefore not advisable. In the case of one of the larger kind of insects it would be much like killing a fowl by nailing one of its feet to the floor. The fowl would perhaps die in a day or two, so, if pinned, would a butterfly. But as to cruelty in the case of the latter it has been conclusively proved, and can be easily discovered by anyone who is blood-thirsty enough to put the matter to the test, that insects are quite incapable of experiencing pain in the sense that we understand it. Most people have probably heard of Baron Munchausen and the accident that befell his horse one day, the portcullis falling just a moment too soon as he was riding in at the castle gate. The baron noticed nothing wrong, neither apparently did his steed, until after they arrived at the watering trough. The rider remained mounted whilst the horse drank, and noticing that it drank more than usual, and hearing, as he thought, a stream of water behind him, the baron turned his head, to find that the animal's hind quarters had been left at the other side of the portcullis, which had severed the horse just behind the saddle, and as fast as it drank the water flowed out behind. Let any man (I ask it not of the fair sex) take a wasp, sever him at the "waist" and then offer him some syrup or fruit juice, and the head and the thorax will generally be found to be far too appreciative of the sweets to take any notice for a few minutes of the loss of its body, and as fast as the head eats, the sugar will exude behind the thorax. When it thinks it has eaten enough, or should it refuse to eat at all, it will probably attempt to fly, but loss of the natural weight of the body behind will cause it to fall forward. The experiment has been carried further, though not in the actual experience of the writer. The lost

weight has been replaced by a false body, and the insect thus been enabled to fly. But it is the first part of the experience only that is required to show that the insect can scarcely be supposed to experience what we know as pain.

I may conclude with the following story, which has been related to me by one of the best known entomologists in the United States, and which is illustrative of how mysterious the ways of a butterfly collector must often seem to the uninitiated. It has sometimes been the custom of my friend, who happens to belong to the medical profession, and whom I will call Dr. W., during his collecting excursions to various parts of the continent, to ask some resident in a district from which he wanted specimens, to collect for him all the season through. On one occasion he had elicited a promise from the keeper of some park in the south western states that he would collect large quantities of butterflies during the season, for which Dr. W., was to pay him a remuneration. The Doctor apparently forgot to give the necessary instructions as to how to handle the insects, but returned to the place the following year, expectant of large numbers of most rare and valuable species of butterflies amongst the season's catch. "Well," he asked of the keeper, "have you collected many butterflies for me?" "Thousands of 'em," replied the keeper, "Didn't think it possible to have caught the number in the time." Dr. W.'s face beamed. "That's good! Where are they?" he inquired. The keeper thereupon produced a wash-tub, nearly full of butterflies of every description, with a purring cat and a litter of five or six lively kittens comfortably bedded in the middle. Dr. W.'s disappointed exhortation may be better imagined than described. "Waal," drawled the keeper, now nearly as much surprised as my friend, "I didn't know what you wanted 'em for. Thought may be you were going to pound 'em down into some kind of medicine."

THE RODENTS OF ALBERTA.

(By Henry George, M.R.C.S.)

I have chosen to speak to you tonight a few words on "The Rodent Animals of Alberta," which are of great interest to the agriculturalist because through gnawing their food they are in many cases injurious and destructive to trees, crops and grasses.

The rodents are a numerous family, indeed, they comprise the largest number of animals in any one class.

To show you why they are called by this name, I have here the skull of a beaver, one of the largest rodents of America; you will perceive at once the peculiar formation of the teeth, which consist only of incisors and molars, the canine teeth of flesh eaters being absent, notice the large and strong incisor or cutting teeth, so well adapted to gnawing wood and other hard substances; one great peculiarity of these teeth is, that they are constantly growing and are only kept in bounds by the attrition or wearing of their chisel-like edges. To illustrate this I have here the head of a Hudson Bay red squirrel, you will notice the enormous development of the upper incisors, due in this case to some accident that prevented the teeth meeting and so they had gone on growing until the poor squirrel starved to death. The rapid growth of the teeth of rodents was

found out by Mr. Hunter who in experimenting drew teeth from rats to see the enormous growth of those left.

The following is a list of the rodents of Alberta as far as my observation has gone, and living in a town with professional duties to perform my opportunities have been necessarily curtailed, but a person can by keeping eyes and ears open all the time and making notes gather a great amount of useful and interesting knowledge which will be a pleasure many a long day after. I will begin with the hares, *Lepus*, of which we have two kinds, and one in the mountains making three species in all but I can find no true rabbit in the Territories.

First, the Prairie Hare or Jack Rabbit, *Lepus Texiana*, is a large and handsome animal its habitat is the open prairie and not the bush country, its weight is from nine to twelve or even more pounds, its flesh is excellent eating, in fact it seems to be merely a geographical variety of the Scotch hare. Like many other animals inhabiting countries where snow is, this hare changes its brown summer coat for a winter one of pure white leaving only the tips of the ears black, this change is one of nature's protecting features.

The Northern Hare or Bush Rabbit, *Lepus Americana*, is much smaller and inhabits the willow and poplar bluffs, its numbers being sometimes enormous. I have stood at the mouth of the Medicine river and without moving more than twenty-five feet have shot over thirty rabbits. These little rabbits are brown in summer and white in winter, they are good eating and form the food of lynx, foxes and coyotes, also owls, goshawks, eagles, etc., in winter. There is a tradition that these rabbits die off every seven years, certainly they do every few years, approximately seven or eight, when in great numbers they suddenly disappear almost entirely. This is partly due to a disease that comes among them, usually taking the form of a large abscess in the neck or elsewhere due probably to overcrowding and interbreeding. My own opinion is that many of the rabbits migrate as I have not only observed the sudden disappearance but also the almost as sudden reappearance of these animals. They do not seem to trouble the farmers very much.

The Little Chief Mountain Hare is found, as its name implies, in the Rockies but I have no acquaintance with it neither have I ever seen a specimen.

The Canadian Porcupine, *Erethizon epizanthus*, although far from rare, people seem to know very little about this interesting animal, owing no doubt to its very retiring habit. It is sluggish and inoffensive unless interfered with. Living on bark and buds of trees, especially spruce, it must destroy quite a few. It is very good eating and I have heard that in some places killing it wantonly is forbidden as it is one of the few animals that can easily be killed with a club, and any person lost in the woods without firearms or traps would be able to get food if porcupines were around. It is covered with short sharp quills and these are much used by the Indians to ornament their mocassins, etc. They dye the quills in various colours and make pretty patterns with them.

The Beaver, *Castor fiber Canadensis*, is now scarce, but too well known for me to say much about it; it builds neat houses and also constructs dams across streams; its fur is very valuable and its flesh is eatable; it seems very intelligent, felling trees in such a way that they fall as they are wanted. I have here a piece of a small poplar tree that was felled by a beaver and anyone can examine and perceive the marks

of their strong teeth. It must be very interesting to see them at work but beaver colonies are now scarce having but recently been protected by law.

The Musk Rat, *Fiber zibethicus*, inhabits the lakes and sloughs of the Red Deer district in thousands and they are regularly trapped for their fur. They are like miniature beavers but they are not so cunning and their winter houses are not so neat, neither do they fell trees nor build dams but they are expert divers. They live on roots, poplar bark, and willow. Some points of difference between the muskrat and the beaver are that in the latter the ears are black, the fur brown, the hind feet large and webbed and the tail is broadly oval in shape and flattened horizontally, while in the rat the ears and fur are both brown, the tail being narrow and flattened laterally. The beaver uses his tail in his house building work while the rat uses his as a rudder when swimming. The Indians and half-breeds eat the musk rats and esteem them a delicacy. White and pied musk rats are sometimes caught.

The Bush-tailed Mountain Rat, *Neotoma*, is in the mountains and is a typical land rat. It has longish fur, very long bristly whiskers, large ears and a bushy tail with which it rasps loudly like a person knocking at a door. These rats are great thieves, especially liking bright metal things and the miners say they can steal anything up to a blacksmith's anvil.

The only Brown Rat I have ever seen in Alberta was killed at Calgary in 1889 in a car of grain from the coast.

There are some fourteen or so species of mice and shrews the latter resembling mice but not being rodents, but my notes on these are far from complete. I might mention one little mouse I have watched that sits upright on its hind legs and tail and jumps like a very small kangaroo. Some of the nests of field mice are beautifully made.

The Ground Hog or Woodchuck.—In this part I have only seen four specimens and these were all in the shop of the Red Deer taxidermist, Mr. Grant; three were gray and one black. These were all caught near the town of Red Deer and I have no observation to record about their mode of living, etc. I was not sure that there was such a thing as a black ground hog before seeing one in the Montreal museum.

The Marmot or Whistler.—These animals are in the mountains in great numbers and live in holes. Their name is derived from the noise they make which is just like that of a man whistling and so like is it that people often look round to see who it may be. There are two varieties, black and hoary gray.

The Red or Hudson Bay Squirrel.—This pretty little creature is well-known to everyone who walks among the spruce trees along the banks of rivers or streams. They are lively, interesting and do little harm, their nests are large being made of moss and rootlets. They are not bad food when one is hard up and hungry.

I have been told by the Cree Indians around Bear's Hill and Hobbema of a large grey squirrel but I have never seen one.

The Flying Squirrel is found in the woods surrounding my home at Innisfail, being generally seen at dusk. Their eyes are large and very like those of a deer; they don't fly exactly like a bird but the skin which is stretched like a web from the forelegs to the hind ones bears them up as they spring from one tree to another, describing a half circle without touching the ground.

Richardson's Striped Squirrel.—Generally known as the Chipmunk is a pretty little animal, very quick in its movements. You find it among the spruces and tamaracs like the red squirrel. It is very small with a large tail and the back has longitudinal stripes of black and white.

The Four-banded Ground Squirrel, *Tamias quadrivittatus*, which I understand is the true Chipmunk, I have only seen at Banff. It is about the size of a common grey gopher but has bands of brown and white along the sides. Generally it has its hole at the root of a tree.

The Striped Gopher, *Spermophilus tridecemlineatus*, is one of the most handsome of its family, being marked as its name implies, with thirteen stripes of black and white, and spots running lengthwise over the back. It is rather a solitary animal and seems to disappear before the common grey gopher.

The Pocket Gopher or Mole lives chiefly underground and is the animal that throws up the heaps of mould in gardens and fields. It is called a mole, though the European or true mole is insectivorous and not a rodent. This gopher is very destructive to roots of grasses and to crops of roots and potatoes. Its name is derived from two pouches or pockets which are situated on both sides of the mouth but do not open into it at all, being filled with grain and other food from outside and emptied by their pressing out the contents with the forepaws. The best way to catch them is by setting a trap in the runway between two heaps. The fur is blackish grey and soft like that of a mouse; the eyes are very small and black; the tail is short and devoid of hair.

I have left the common grey gopher until last. This animal is called Richardson's Gopher, *Spermophilus Richardsoni*, named after Dr. Richardson the great explorer. It is hardly necessary to bother you with a description as it is so numerous on the prairie, and everyone is familiar with it. Pure white ones are rare but they were found near Innisfail some years ago. The gopher is really the cause of this paper as you are all aware the Territorial Natural History Society exists with the principle object of finding out the farmers' friends and foes, not only in the insect and vegetable worlds, but also amongst the animals and birds, and it happens that I have paid more attention to the latter. Previous to our wet years the gopher was here in millions and everything was tried to exterminate them. The Agricultural Society at Innisfail, while I was president, thought they did a great thing in giving fifteen money prizes for gopher tails caught during the spring before the 15th of May, 100 tails being the least allowed to compete and the first prize being ten dollars cash. We calculated that one gopher killed in the early spring was worth ten killed later. 20,000 tails at least were brought in and it did not seem to diminish their numbers at all, but the wet summers did the business and for the last three years you could not see a gopher in a day's driving. Now it seems to me that our dry summers are returning, so if farmers will only bear in mind the pests the gophers were before the rains, they will kill every gopher possible as it appears and so save themselves lots of drainage to their crops and grasses.

WILD FLOWERS OF THE BANFF PARK.

(By N. B. Sanson.)

It is my intention only to touch briefly on this subject giving a few of the more noticeable plants in and about the Rocky Mountains Park.

The anemone wrongly called the crocus (*Anemone patens v. nuttalliana*) is the first growth of spring appearing as early as the end of March or not till the beginning of May in different shades of purple from light to deep colouring. A favourite resort of these flowers is on sandy and gravelly soil a short distance up Tunnel Mountain on the sides of Banff Avenue beyond the railway crossing, on a sandy slope overlooking the Bow river on the old road to Anthracite, around the Lower Park or Loop and on a grassy slope on Stony Squaw Mountain.

Calypso (*Calypso borealis*) is a flower of the mocassin pattern and is pink with a single round ovate leaf at the base, it grows in the woods on Sulphur Mountain and is found in flower during May and the early part of June. It belongs to the orchids and is a beautiful plant growing in rather out of the way places.

Shooting star or American cowslip (*Dodecatheon Meadia*) is purplish pink, and, with the cone tipped with yellow and the flower leaves thrown back, it looks not unlike a rocket. The leaves are fleshy and attached near the root on the stalk. It grows on Squaw Mountain by overflow from sulphur water off the Hot Springs road and is in flower from May.

The clematis (*Clematis Verticillaris*) with its pale purple flowers on twining woody vines is often found in the deep recesses of the forest.

Long plumed avens (*Geum triflorum*) has drooping reddish purple flowers which appear as if not fully open but when in seed they are erect with long plumed hair. The leaves are much cut and hairy from the base of a reddish stalk. It grows abundantly on the side of the road to the mines and also around the lower park.

The flower of the butterwort (*Pinguicula vulgaris*) is not unlike a purple violet with leaves seemingly greasy to the touch and on which insects are caught. It grows in wet ground and derived its name from its use in curdling milk.

Saxifrage (*Saxifraga bronchialis*) grows plentifully on several mountains, its flowers are white with purple spotted petals and spruce like leaves.

The yellow columbine (*Aquilegia flavescens*) grows abundantly on mostly all the mountains but it is not so frequently seen in the valleys. Its flower leaves occasionally show a tint of scarlet or blue. The purple variety (*A. brevistyla*) grows about the lower park and is not so plentiful as the above.

One flowered wintergreen (*Moneses Uniflora*) has a five petalled waxen flower with a green clubbed-shaped pistil and thin finely notched rounded leaves clustered near the ground. The flower is drooping but erect when in seed. It grows on the slopes of well wooded mountains.

The round-leaved orchid (*Orchis rotundifolia*) has one leaf at the base and several flowerets at the top. The sepals and petals are oval and rose coloured, the lip is white with purple spots and is longer than the petals. It is a dainty little flower growing mostly in damp places.

The star-flowered Solomon's seal (*Smilacina Stellata*) bears a slight resemblance to the lily-of-the-valley but has more leaves alternate on the stalk. Its flowers are white and it may be found growing in sandy or gravelly soil around the lower park.

The wild sweet pea (*Lathyrus ochroleucus*) grows amongst grass, with a cream-coloured sweet scented blossom.

Yellow mocassin plants (*Cypripedium pubescens*) grow in moist places but are not plentiful and the same may be said of the smaller white species (*C. passerinum*) which is found in the woods.

The northern twin-flower (*Linnea borealis*) with its sweet scented delicate pink bell shaped flowers growing in pairs, is also found in the cool moist woods.

Arnieas of several varieties are numerous with their rich yellow flowers which have a perfume that is not unpleasant. They are found both on the mountains and in the valleys.

The scarlet flowers of the painted cup, paint brush or flame flower (*Castilleia pallida v. septentrionalis*) produce a very striking and brilliant effect amongst the green grass and in the open woods. As one ascends the higher mountains they will be found to have changed to a much deeper and richer colour. The white species (*C. pallida*) which grows on the mountains takes on some beautiful tints of cream cardinal. These plants are said to derive some of their nourishment from the juices of other plants.

The large flowered oxytropes (*Spiesia inflata*) is an arctic and alpine plant, with purple flowers and large inflated seed pod, growing on the higher mountains.

The spring beauty (*Clatonia caroliniana sessilifolia*) with its two leaves and five-petalled pink and white flowers, has peculiar nut shaped tuberous roots which are eaten by the Indians. It is found on grassy mountians in exposed situations. This supersensitive exquisite, however hardy, will droop and the blossoms close with indignation if a flower is picked, and no coaxing except hot water and sunshine will induce them to open again.

The mountain claytonia (*C. Megarrhiza*) grows on some of the higher mountains amongst loose rock its long tap root penetrating deeply. Its flowers are white, or occassionally yellow, with pink veins and the leaves are fleshy.

Bright green moss like cushions with an abundance of pretty pink flowers found on the higher mountains are composed of the moss pink (*Silene acaulis*) which attains an altitude of about 4000 feet above the level. It is well adapted for use in rock gardens.

Willow herb or fireweed (*Epilobium angustifolium*) grows to several feet in height with pink flowers and long narrow leaves, covering much ground where forest fires have left their unsightly traces.

The yellow avens (*Dryas Drummondii*) with yellow petals, which do not open fully and are followed by long wavy seed, grows in the valleys while the white or mountain species (*D. octopetala*) the flowers of which open wide, covers large patches of the mountains. Their leaves are similar.

Two species of the larkspur with their indigo coloured flowers are found, the tall one (*Delphinium scopulorum*) occurs in stray places but is not very plentiful, the smaller one (*D. variegatum*) growing on the mountains.

The red lily (*Lilium Philadelphicum*) grows in open ground and blooms about the beginning of July, brightening the landscape with its brilliantly coloured spotted petals.

Hare bells (*Campanula rotundifolia*) flower in the latter part of the summer, withstanding the cold and occasional snows which its slender stems and pretty blue flowers hardly look capable of doing. It is found both in the valleys and on the mountains.

Many plants in addition to the above might be mentioned but this will give an idea of the colouring of our terrestrial landscape and help visitors to name the flowers they gather.

BIRD MIGRATION NOTES—SPRING 1904—OBSERVATIONS AT INDIAN HEAD BY GEORGE LANG.

Name of bird	When first seen	About how many	When next seen	When common	When last seen	Common or rare	Does it breed near by	Remarks
Prairie horned lark.....	March 19.	18	Mar. 20.....	Mar. 20.....	.....	Common	Yes	
American sparrow hawk.....	" 22	1	Apr. 10	Apr. 19.....	.....	"	"
Marsh hawk.....	" 28	1	Apr. 2.....	Apr. 2.....	.....	"	"
Crow.....	" 28	1	Mar. 29.....	Mar. 30.....	.....	"	"
Canada goose.....	" 29	5	Apr. 5.....	Apr. 18.....	May 20.....	"	No	
Fox sparrow.....	" 29	1	Apr. 4.....	Apr. 4.....	.....	"	Yes	
Rough legged buzzard.....	April 2	1	Apr. 3.....	Apr. 3.....	.....	Mod. c.	No	
Juncos.....	" 3	1	Apr. 4.....	Apr. 4.....	May 24.....	Common	"	
Mallard.....	" 5	20	Apr. 9.....	Apr. 13.....	.....	"	Yes	
Meadow lark.....	" 7	4	Apr. 8.....	Apr. 15.....	.....	"	"
Swainson's hawk.....	" 12	2	Apr. 16.....	Apr. 16.....	.....	"	"
Sharp shinned hawk.....	" 12	2	Apr. 15.....	Apr. 15.....	.....	"	"
Sand hill cranes.....	" 18	10	Apr. 24.....	Apr. 24.....	May 24.....	"	No	
Whooping cranes.....	" 19	3	Apr. 24.....	Apr. 24.....	May 24.....	"	"	
White pelicans.....	" 19	1	May 9.....	May 9.....	.....	"	"
Green-wing teal.....	" 20	2	Apr. 27.....	Apr. 27.....	.....	"	Yes	
Pin-tail duck.....	" 20	1	Apr. 27.....	Apr. 27.....	.....	"	"
Crested merganser.....	" 20	2	Apr. 22.....	Apr. 22.....	May 20.....	"	No	
Crow blackbird.....	" 24	1	Apr. 25.....	Apr. 26.....	.....	"	Yes	
Robin.....	" 24	3	Apr. 27.....	Apr. 30.....	.....	"	"
Killdeer plover.....	" 26	2	May 3.....	May 3.....	.....	"	"
Cowbird.....	" 28	30	Apr. 28.....	Apr. 28.....	.....	"	"
Red-wing blackbird.....	" 28	7	Apr. 29.....	May 1.....	.....	"	"
Golden woodpecker.....	" 28	2	Apr. 29.....	Apr. 29.....	.....	"	"
Jack snipe.....	" 28	2	Apr. 29.....	Apr. 29.....	May 15.....	"	No	
Mourning dove.....	" 29	1	Apr. 30.....	May 3.....	.....	"	Yes	
Belted kingfisher.....	" 30	1	May 2.....	May 2.....	.....	"	"
Prairie plover.....	May 2	2	May 4.....	May 9.....	.....	"	"
House wren.....	" 3	2	May 14.....	May 14.....	.....	"	"
Barn swallow.....	" 9	1	May 17.....	May 17.....	.....	"	"
Sora rail.....	" 15	1	May 17.....	May 17.....	.....	"	"
King bird.....	" 17	2	May 18.....	May 19.....	.....	"	"
Black-bellied plover.....	" 9	20	May 17.....	May 17.....	May 28.....	"	"	
Yellow bird.....	" 17	2	May 19.....	May 24.....	.....	"	"
Baltimore oriole.....	" 20	5	May 21.....	May 21.....	.....	"	"

Black tern	May 21	15	May 25	Common	Yes
American goldfinch	" 28	20	May 29	"	"
Night hawk	" 25	8	May 26	"	"
Cedar bird	June 3	30	June 4	"	"
Ruby throat humming bird	" 3	1	.....	Rare	"
White-wing blackbird	" 3	7	.....	.....	Used to be common but rarely noted now
Turkey buzzard	" 3	1	.....	Rare	Sometimes

First one noted since 1891

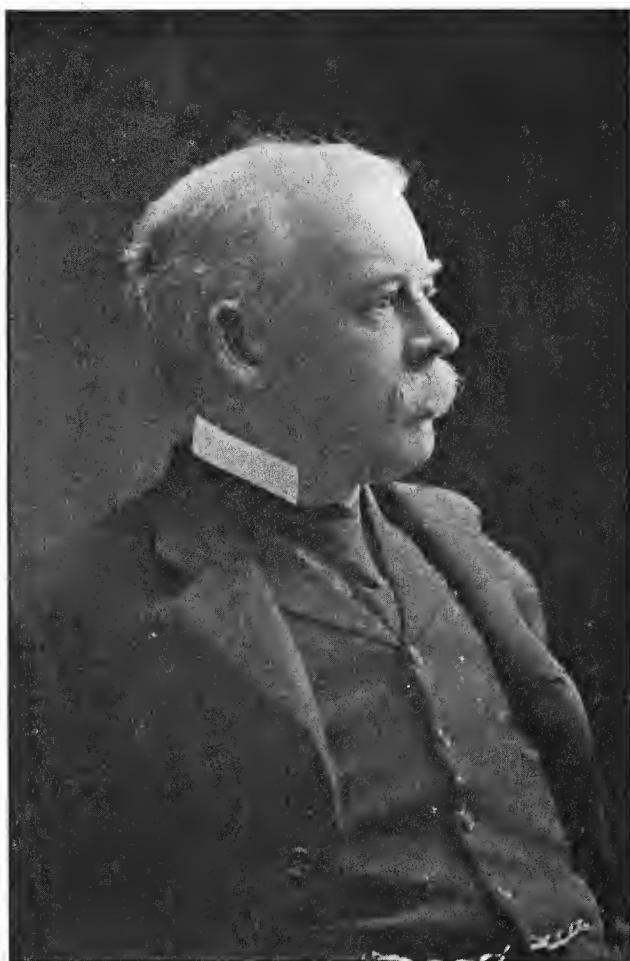
BIRD MIGRATION NOTES—FALL, 1904—OBSERVATIONS AT INDIAN HEAD BY GEORGE LANG.

Name of Bird	When first seen	About how many	When next seen	When common	When last seen	Common or rare	Does it breed near by	Remarks
White pelican	Oct. 2	13	.....	Oct. 15	Oct. 5	Common	Yes	
Canada goose	Sept. 28	20	.....	Oct. 10	Nov. 28	"	No	
Whitefront goose	" 30	5	.....	Oct. 20	Oct. 20	"	"	
Hutchin's goose	" 30	30	.....	Nov. 10	Nov. 11	"	"	
Snow goose	Oct. 3	25	.....	Nov. 2	Nov. 20	Rare	"	
Whooping crane	Sept. 25	2	.....	Oct. 2	Oct. 2	"	"	
Golden eagle	" 30	2	.....	Nov. 30	Nov. 28	"	"	
Mallard duck .....	.....	.....	.....	Nov. 28	Nov. 28	Common	Yes	
Pintail duck	Oct. 29	30	Nov. 2	Nov. 15	Nov. 20	"	No	
Canvas back .....	.....	.....	.....	Nov. 2	Nov. 2	"	Yes	Summer resident
Blue wing teal .....	.....	.....	.....	Nov. 18	Nov. 18	"	"	Summer resident
Green .....	.....	.....	.....	Nov. 30	Nov. 30	"	No	
Blue-bill or scaup	No. 20	12	Nov. 21	Nov. 28	Nov. 30	"	Yes	
Crested merganser .....	.....	.....	.....	Nov. 28	Nov. 28	"	No	
Spoon bill duck .....	.....	.....	.....	Nov. 28	Nov. 28	"	Yes	
Loon .....	.....	.....	.....	Nov. 30	Nov. 30	"	No	
Pie-billed grebe .....	.....	.....	.....	Nov. 30	Nov. 30	"	Yes	
Wilson's tern .....	.....	.....	.....	Nov. 28	Nov. 28	"	"	
Bittern .....	.....	.....	.....	Oct. 15	Oct. 15	"	"	
Marsh hawk .....	.....	.....	.....	Nov. 20	Nov. 20	"	"	
Sharpshin hawk .....	.....	.....	.....	Oct. 4	Oct. 4	"	"	
American sparrow hawk .....	.....	.....	.....	Oct. 5	Oct. 5	"	"	
*Crow .....	.....	.....	.....	Oct. 8	Oct. 8	"	"	

BBIRD Migration Notes—Fall, 1901—Observations at Indian Head by George Lang—Continued.

Name of bird	When first seen	About how many	When next seen	When common	When last seen	Common or rare	Does it breed near by	Remarks
Blackbirds	.....	.....	.....	.....	Oct. 5	Common	Yes	
Fox sparrow	.....	.....	.....	Oct. 15	“		“	
Whitecap sparrow	.....	.....	.....	Oct. 2	“		“	
Robins	Oct. 2	5	Oct. 3	Oct. 24	“	No	“	
Juncos	.....	.....	.....	Nov. 24	“		Yes	
Mourning dove	Oct. 3	1	Oct. 5	Oct. 1	“		“	
Black and white crepper	.....	.....	.....	Oct. 10	“		“	
King bird	.....	.....	.....	Sept. 27	“		“	
Yellow-bellied sapsucker	.....	.....	.....	Sept. 25	Rare	No	“	
Red head woodpecker	.....	.....	.....	Sept. 24	“		“	
Golden woodpecker	.....	.....	.....	Sept. 25	Common	Yes	“	
House wren	Sept. 20	3	Sept. 24	Oct. 16	“	No	“	
Black cap chickadee	Nov. 20	10	Nov. 25	Nov. 25	“	“	“	
Snow hunting	.....	.....	.....	Sept. 25	Sept. 23	Yes	“	
Chestnut collared hunting.	.....	.....	.....	Sept. 25	“	“	“	
Meadow lark	.....	.....	.....	Sept. 28	Sept. 28	“	“	
Swainson's hawk	Sept. 20	20	Sept. 22	Sept. 23	Oct. 2	No	“	
Golden plover	.....	.....	.....	Oct. 25	Oct. 25	“	“	
Sora rail	.....	.....	.....	Oct. 24	Oct. 24	“	“	
Rice bird	.....	.....	.....	Oct. 25	Oct. 25	“	“	

PLATE I.



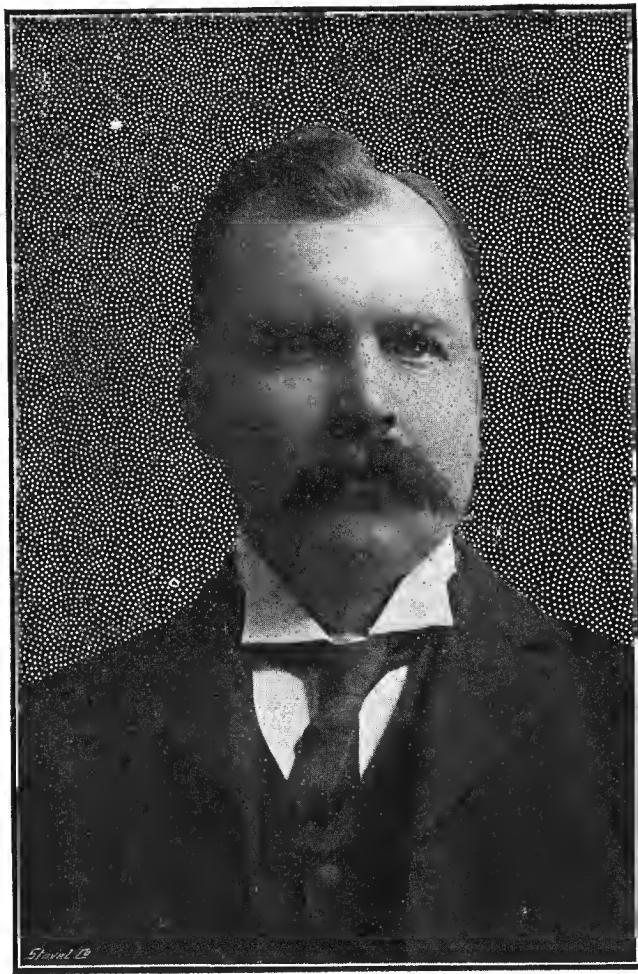
HON. JAMES H. ROSS,
First Commissioner of Agriculture,
October 8, 1897 to January 21, 1899.

PLATE II.



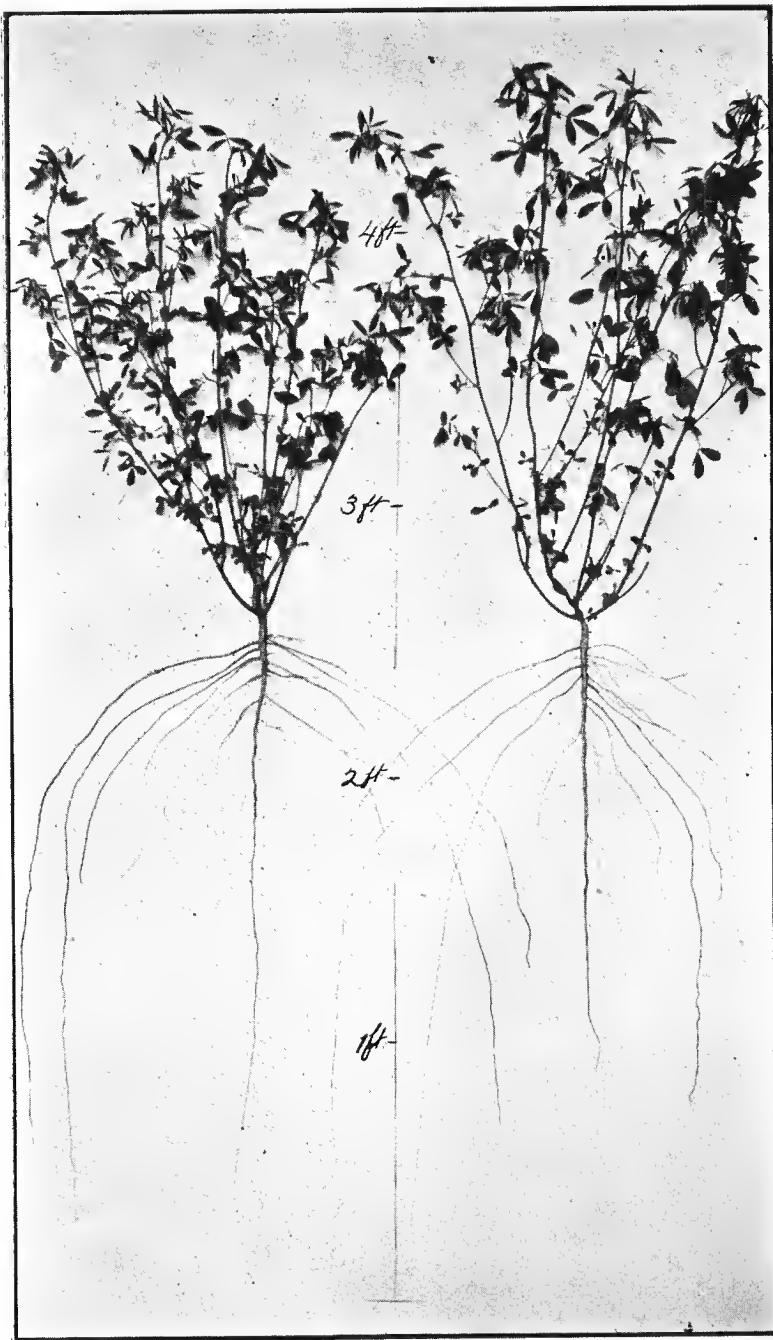
HON. G. H. V. BULYEA,
Commissioner of Agriculture,
January 21, 1899 to February 4, 1903.

PLATE III.



HON. WILLIAM ELLIOTT,
Commissioner of Agriculture.

PLATE IV.



FOUR MONTHS OLD ALFALFA PLANTS GROWN AT INDIAN HEAD
SHOWING ROOT SYSTEM.

PLATE V.



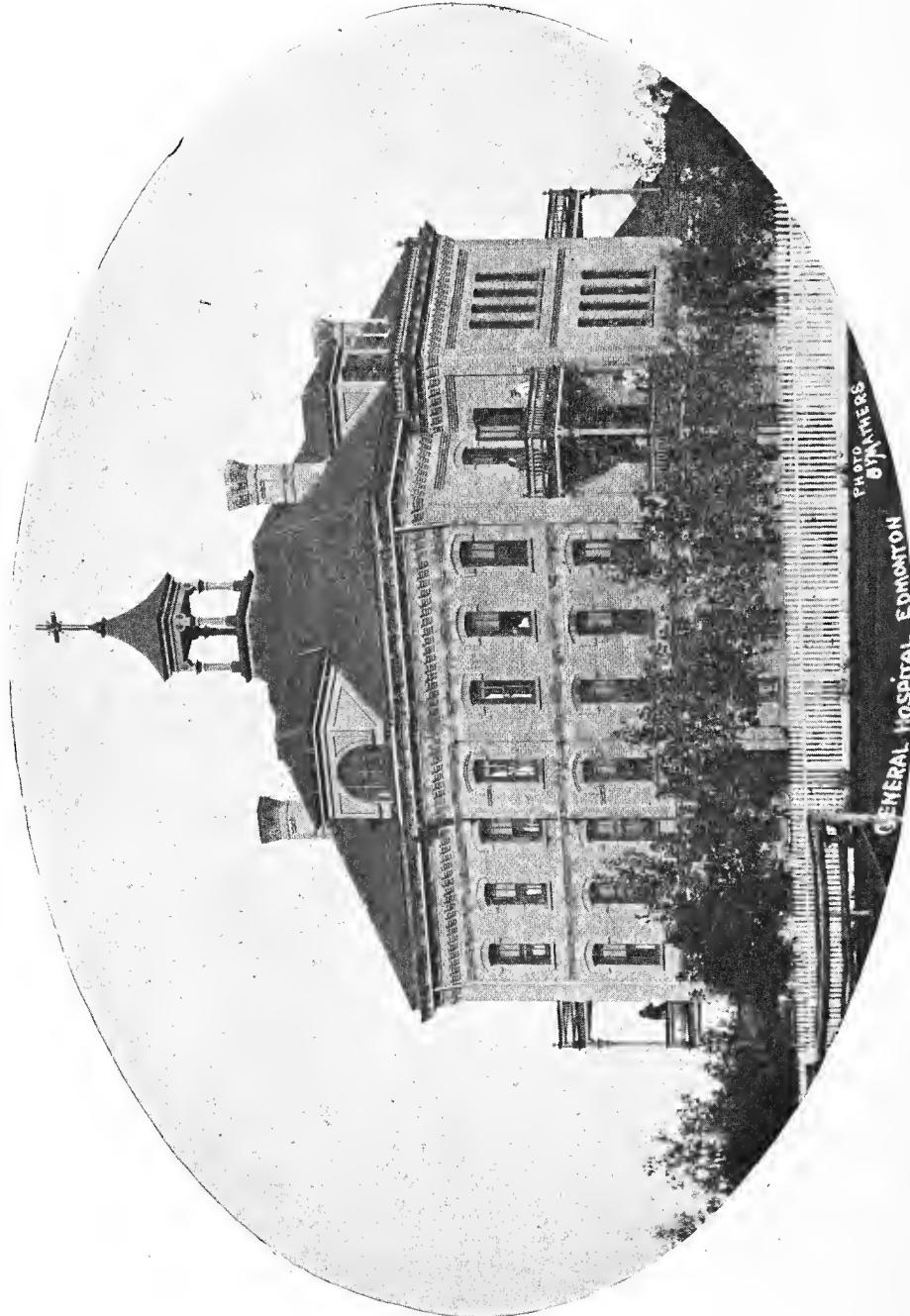
ROOT OF ALFALFA PLANT SHOWING TUBERCLES CAUSED BY
NITROGEN-FIXING BACTERIA.

PLATE VI.



HOG-RAISING ON RAPE, EXPERIMENT CONDUCTED AT INDIAN
HEAD EXPERIMENTAL FARM.

PLATE VII.



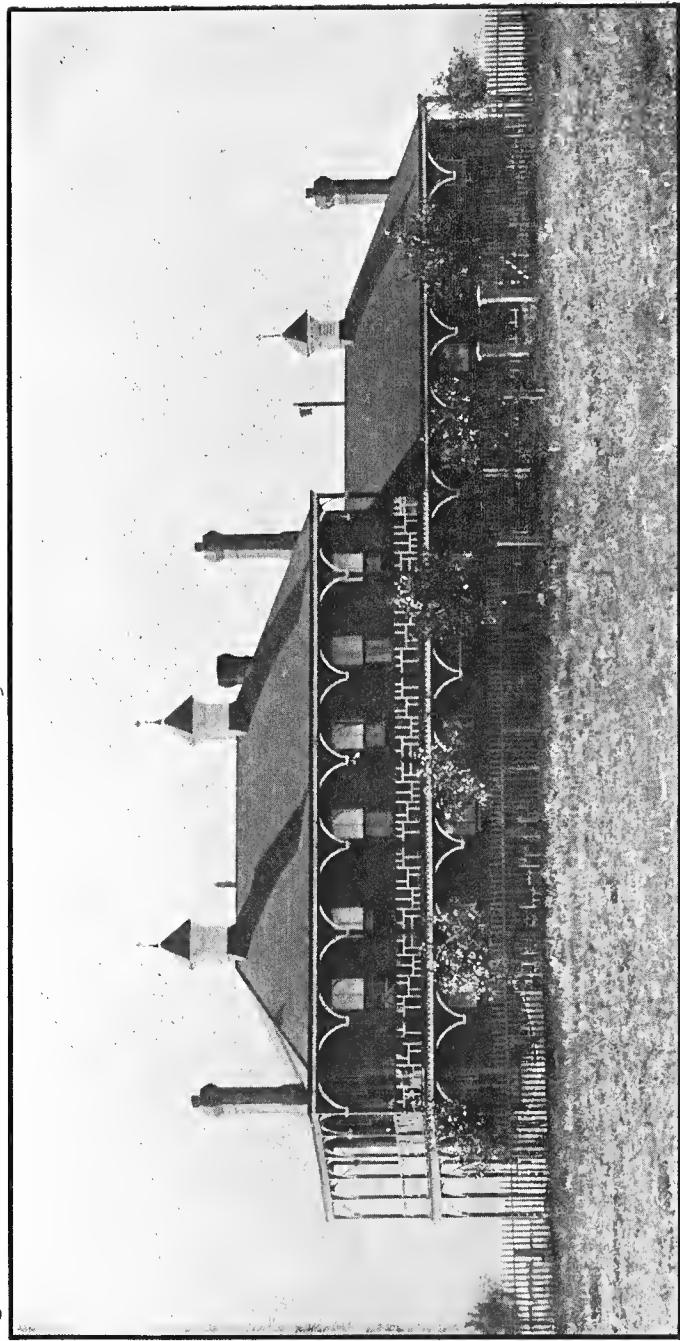
GENERAL HOSPITAL, EDMONTON.

PLATE VIII.



EDMONTON PUBLIC HOSPITAL

PLATE IX.



GALT HOSPITAL, LETHBRIDGE.

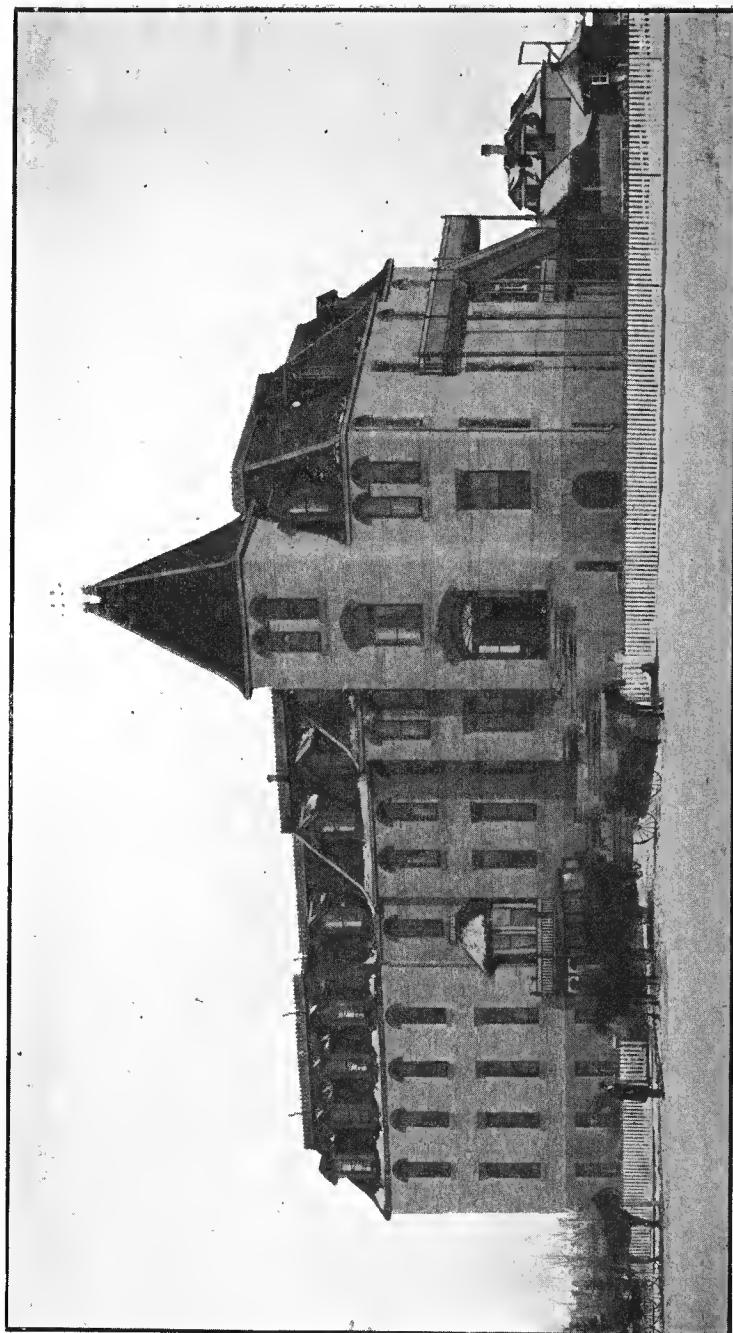
(By permission of the Alberta Railway & Coal Company.)

PLATE X.



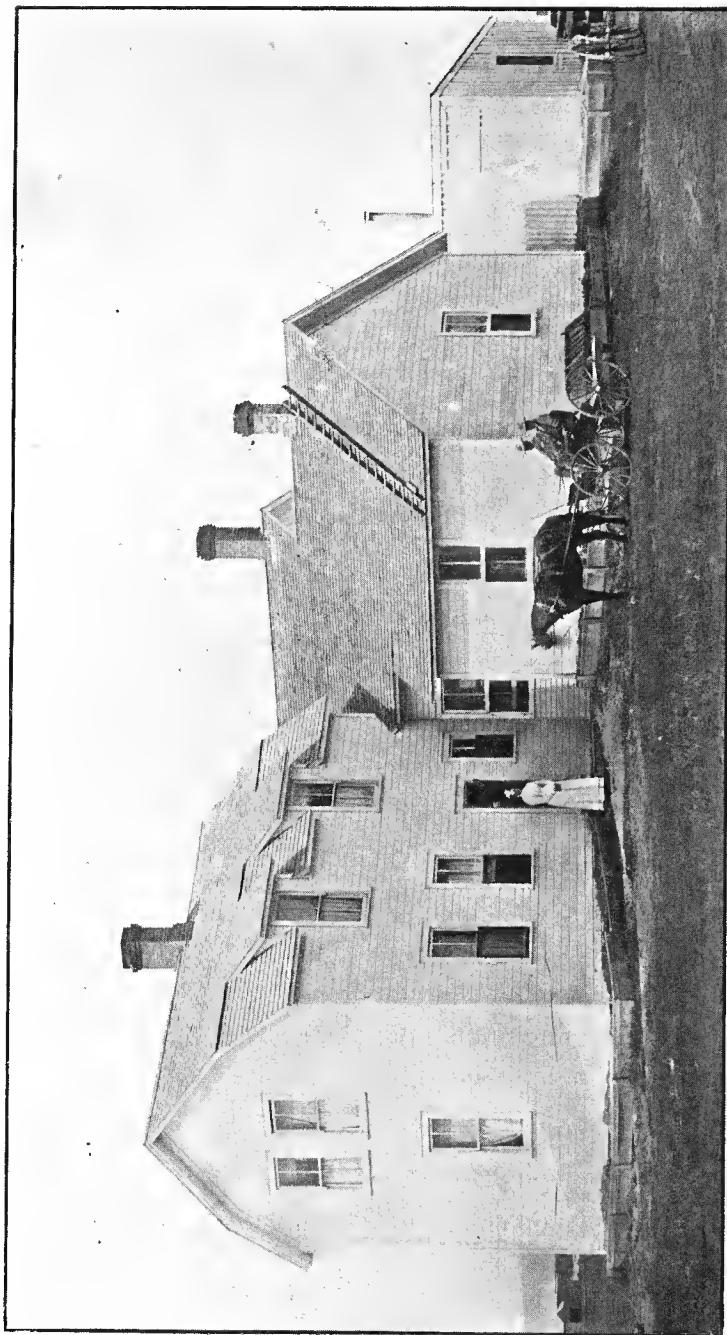
CALGARY GENERAL HOSPITAL.

PLATE XI.



HOLY CROSS HOSPITAL, CALGARY

PLATE XII.



GENERAL HOSPITAL, MACLEOD.

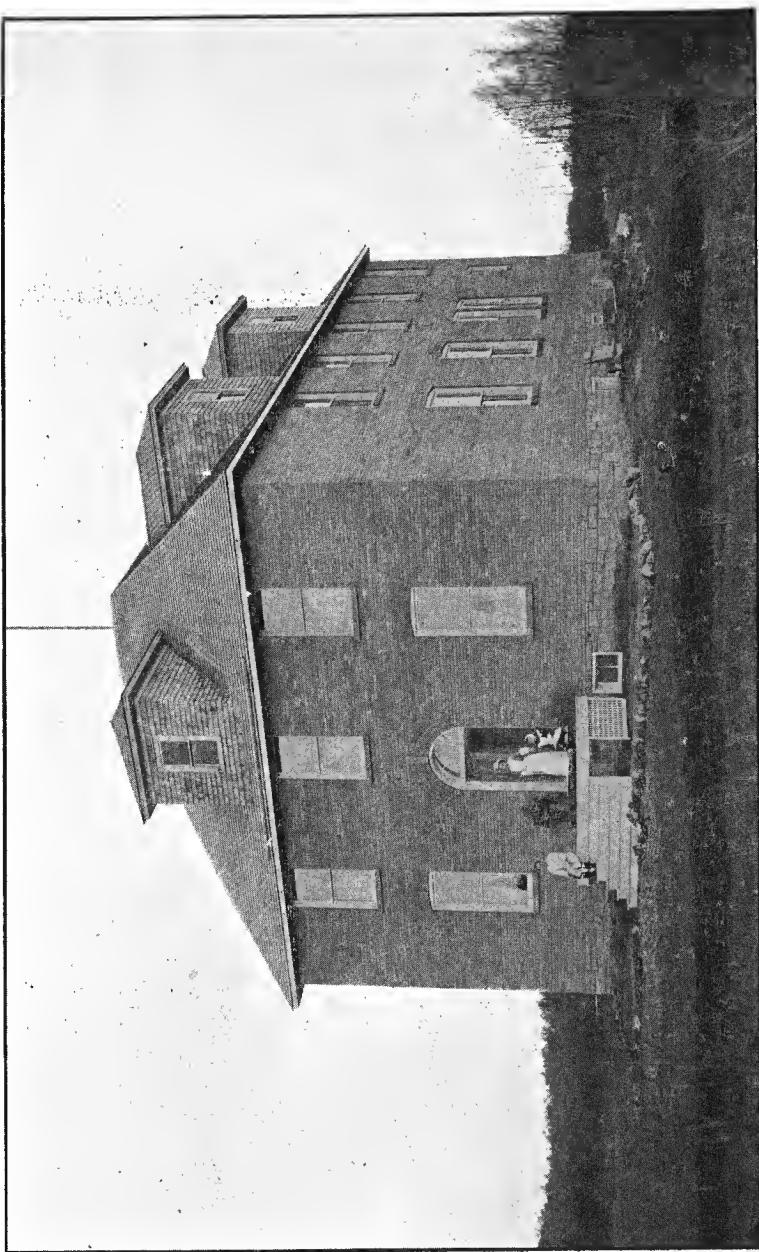
PLATE XIII.



VICTORIA HOSPITAL, PRINCE ALBERT.

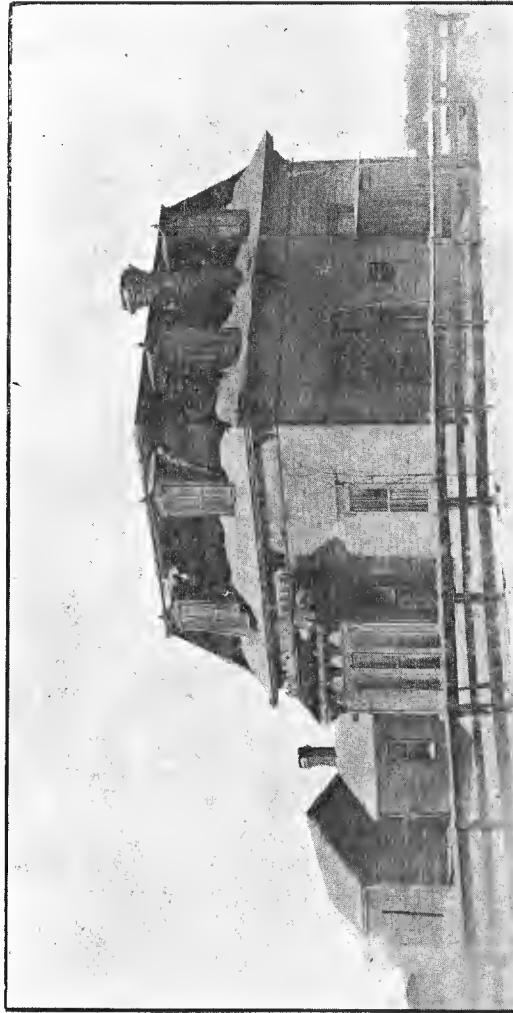
(By permission of W. J. James, Esq.)

PLATE XIV.



MEMORIAL HOSPITAL, RED DEER.

PLATE XV.



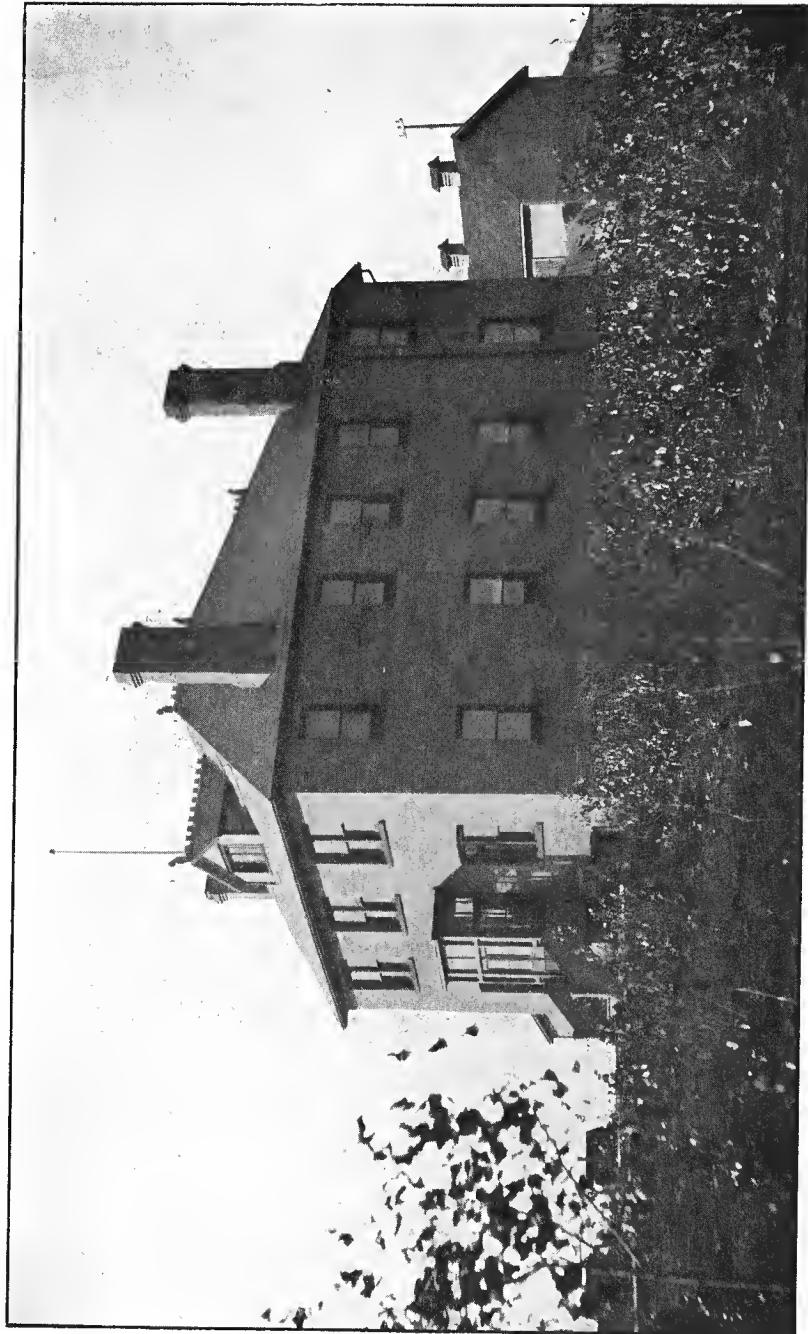
GENERAL HOSPITAL, MOOSOMIN.

PLATE XVI.



QUEEN VICTORIA HOSPITAL, YORKTON.

PLATE XVII.



VICTORIA HOSPITAL, REGINA.

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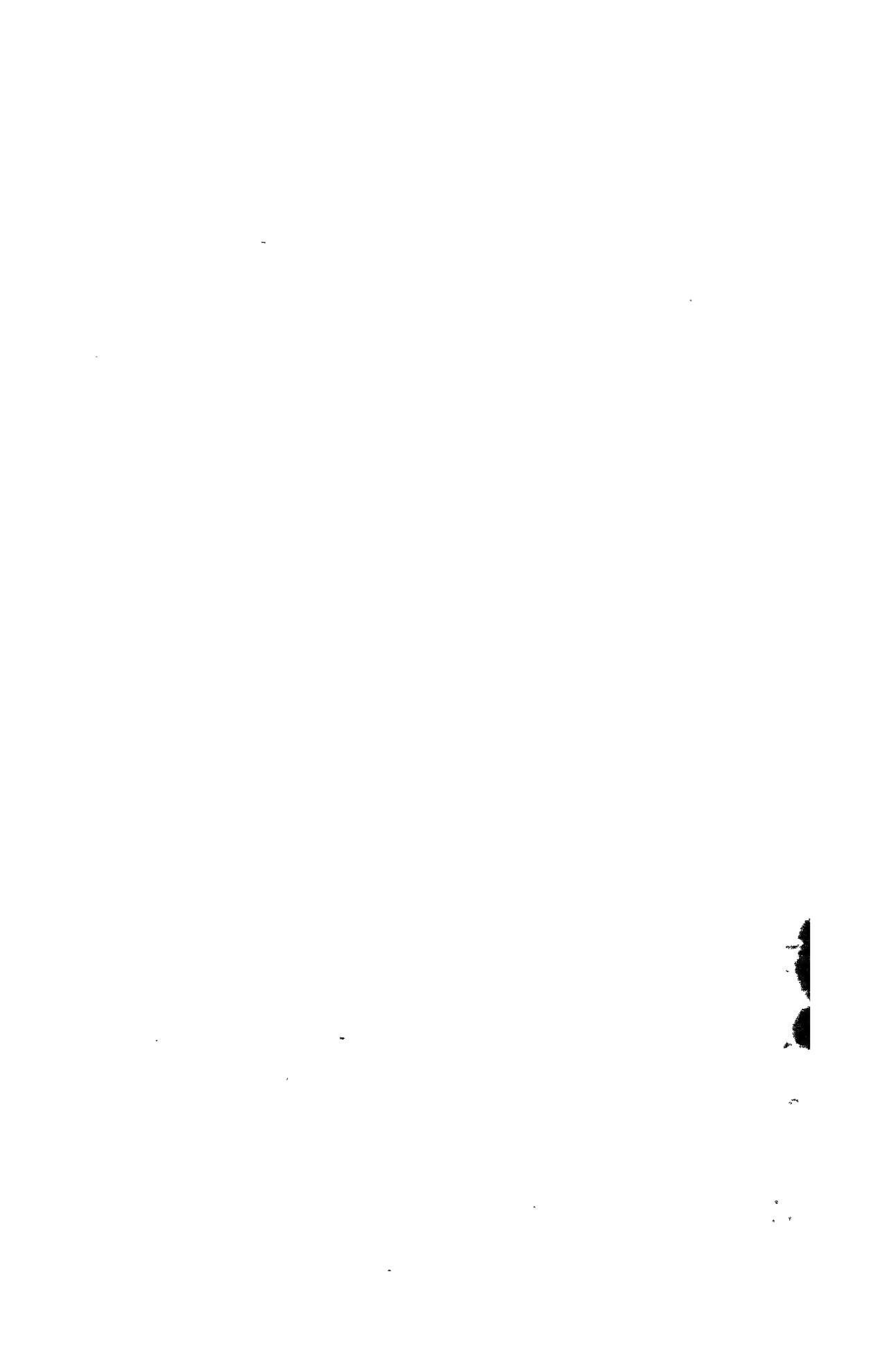
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Date Due	
DEC 11 '80	DUE 14:34
CIRC APR 8 '81	MAR 06 RETURN
RENEWAL	DUE APR 30 '83
GSCI APR 14 '79	JAN 5 RETURN
APR 12 RETURN	DUE CAM MAR 08 '83
CIRC JUN 17 '78	MAR 08 RETURN
APR 10 '79	DUE APR JAN 29 '84
MAY 1	JAN 30 RETURN
CIRC APR 30 '78	DUE CAM JUN 09 '87
MAY 2 RETURN	DUE CAM JUL 23 '87
APR 12 RETURN	due com DEC 02 '87
JUN 18 '80	OCT 06 '87
JUN 1 RETURN	OCT 07 RETURN
CIRC JUL 01 '80	APR 30 1991
JUL 1	APR 12 RETURN

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